RELEVANCE IN RETROSPECT: AN EVALUATION OF GEOGRAPHY CURRICULA AT SELECTED UNIVERSITIES IN OKLAHOMA BY GRADUATED MAJORS 1967-1972

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

Higher education in the United States is undergoing rapid and profound changes. These changes are a product of many complex and interrelated factors. One of the more significant factors contributing to alterations in the form and function of institutions of higher learning is the changing attitude of the American people with respect to what constitutes efficient and effective education at a college or university level. The new mood of the people is reflective of expanded knowledge, technological advancement, population growth and increased mobility, and the competitive desire for attainment of social betterment and higher living standards. While the hitherto esteemed values of breadth, depth, continuity, sequence, and liberal education have not been renounced as worthy goals of mass higher education, an increasingly louder cry for practicality and relevance in the modern college curriculum has emerged. This plea for relevance has not been widely heeded; and it may well be because the vague and elusive character of the term renders a universally acceptable definition impossible. However, it would behoove educators involved with curriculum planning and

implementation to strive for a better understanding of the general expectations which our society has for higher education and the products thereof.

One vital element of this complex problem of relevance is the extent to which our system of tertiary education is providing (or failing to provide) students with the necessary tools or skills for securing and maintaining successful, satisfying employment after graduation. The difficulty of structuring a curriculum with sufficient flexibility to accomplish this goal is unquestionable, for the attitudes and values of the students as well as employment conditions and opportunities may drastically change from the time of matriculation to the year of graduation. Realistically, however, one of the best means of measuring the success of any degree program is the extent to which it provides a serviceable education for its undergraduate and/or graduate majors; one which enables them to compete favorably for jobs and increases their social mobility in our contemporary society. If a degree program fails to perform this function effectively, our university system may well be doomed to extinction regardless of other intrinsic or extrinsic values it may successfully impart.

One of the better sources of input for curriculum evaluation should be graduates who have successfully completed a degree program and who are currently employed in private or public sector jobs related to the major field. Their experience and maturity should enable them to provide

retrospective opinions concerning the strengths or weaknesses of the programs being studied which would be at least as valuable as curriculum assessment either by current students with little or no practical experience or by professional educators who might be viewing the problem from a much different perspective.

As a teacher of geography in higher education for over a decade, this author has received very little feedback from former students indicating their satisfaction or disillusionment with the undergraduate major programs which they completed. A profound interest and concern over the welfare of past and future students has been the primary reason for undertaking this study. Hopefully, the findings of this research will serve to motivate further curriculum evaluation of this kind by other educators who have expressed similar concerns.

Statement of the Problem

The objectives of the study are: (1) to assess the relevance of the geographic education to which a selected population of college graduates has been subjected, with relevance being defined by the individual graduate in terms of his stated satisfactions with various phases of undergraduate geography training; and (2) to obtain a composite profile of the graduates for the purpose of providing information to assist the involved departments in future curriculum review and planning.

Delimitation of the Study

This study is confined to responding geography graduates of five state supported Oklahoma colleges and universities who received baccalaureate degrees from 1967 through 1972.

The criteria utilized to measure the graduate's perceived relevance of his undergraduate geography program were: (1) the degree to which the program enabled the graduate to secure and maintain desirable geographic employment; (2) the degree to which the program prepared the graduate to pursue graduate study successfully; and (3) opinions of the graduates regarding prospects for professional advancement.

Because the results of the study are presented in terms of stated individual perceptions, an obvious bias is imposed by the respondent in his interpretation of what constitutes relevance. This writer concurs with the opinion of Clark who conducted a similar research study in the field of accounting and who concluded that relevance as such can be defined only in the mind of the individual who has experienced the element of this research.[1] Herein, he states, lies the greatest weakness of this research: an experience considered by one respondent to be irrelevant may, in the evaluation of another, be labeled as relevant.[2] Another weakness is that a respondent's perception of curriculum relevance may differ somewhat from those indicators used to assess it in this instrument. Responses, therefore, may not be representative of true feelings.[3]

Opinions provided by the respondents do not necessarily constitute an optimum evaluation of geography curricula. Hopefully, however, these opinions may provide meaningful input to future curriculum evaluation by the departments involved in this study.

Significance of the Study

The findings of this research are expected to contribute to the development of a more efficient and serviceable curriculum for each of the participating institutions. The study should help to identify strengths and weaknesses of existing programs, thus providing some basis for critical evaluation and possible revisions. In addition, it should enable the involved departments and universities to establish a vital communication link with former graduates, enabling these individuals to keep abreast with educational opportunities in their chosen fields and to provide valuable professional information to concerned educators. The respondents also should benefit from participation in this research in that they will be motivated to re-examine professional goals and objectives in light of past educational aspirations and achievements.

A desirable outcome should be a more effective delivery of educational services to future geography majors. This research effort also should stimulate further studies in geography curriculum evaluation by professionals at other institutions of higher learning, thereby strengthening the

foundation of geographic education in general. Much depends, however, upon the receptivity of departmental leadership without which little progress in the area of curriculum improvement can be anticipated.

Need for the Study

Aside from the aforementioned general concern over curriculum relevance and the prospective contributions of the research, at least two other very important benefits could be derived from such a study: First, it should assist the institutions involved in general, and each geography department in particular, to evaluate critically its program in relation to others in order to determine improvements which can make better use of available resources. And, second, it should enable geography teachers to analyze particular elements of the curriculum with which they are personally involved and aid them in restructuring courses to satisfy better the interests and needs of contemporary and future students.

Presentation of the Study

In order to present the research findings in an orderly manner, the remainder of this dissertation is organized as follows:

Chapter II consists of a review of prior studies and existing literature related to the subject of this thesis for the purpose of providing pertinent background

information and comparative data for use in interpretation of research findings.

Chapter III includes a description of the procedures and methods used to accomplish the research. This chapter also reaffirms the the purposes of the research and provides a detailed description of the population studied. The data collection instrument is discussed with respect to its construction, validation, distribution, and response. Finally, the statistical procedures and methods used for analyzing the data obtained by the survey instrument are described and discussed.

Chapters IV, V, VI, and VII are devoted to presentation and detailed analysis of information garnered by the questionnaire. In Chapter IV, responses to questions concerning selection of the geography major, credit hours earned, grade-point averages, the most beneficial and least beneficial geography courses in terms of utility in post-graduate employment, desired courses outside geography, and evaluation of geography instruction are discussed. Chapter V relates to college advisement, particularly with the rating of various areas of advisement and the respondents' perception of the value of an advisor.

In Chapter VI, attention is directed toward questions pertaining to graduate study. Questions for which responses are tabulated and discussed relate to the number of advanced hours earned, assessment of the value of undergraduate geography to successful graduate work, departmental

assistance received when selecting a school for advanced study, rating of undergraduate courses in terms of beneficiality for graduate study, advanced degrees earned and institutions granting advanced degrees.

Chapter VII consists of a comprehensive discussion of various aspects of employment history such as: the number of interviews required for obtaining the first job; the date and location of the first job; the importance of geography as a skill in the job; the starting salary and salary increases on employment anniversaries; the number of jobs held; the location and tenure of jobs; and, perceptions of prospects for advancement.

Chapter VIII presents a summary and conclusions of the research and possibilities for its utilization by colleges and universities in Oklahoma.

FOOTNOTES

[1]R. B. Clark, "A Study of the Evaluation of Accounting Education and the Accounting Profession by Selected Graduates of Universities and Colleges in Kansas" (unpub. Ph.D. dissertation, Oklhoma State University, 1969), p. 9.

[2]Ibid., pp. 9-10.

[3]Ibid., p. 10.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of this chapter is to review literature relevant to the present study. Since this research deals with the geography profession and significant factors relating to curriculum in geographic education, inclusion of a brief discussion of major concepts and objectives of geography as a field of inquiry seems appropriate. Also deemed important are the opinions of professional geographers concerning the goals and objectives of geographic education and the influence which these stated opinions have had on shaping geography curricula in higher education.

While several organizations of professional geographers have influenced curricular philosophy of geography in higher education, the one with greatest impact in the United States has been the Commission on College Geography of the Association of American Geographers. Publications of this organization merit special attention because of their far-reaching effects on geographers concerned with formulation and implementation of departmental goals and objectives.

The last section of this chapter is a summary of major

research studies relating to retrospective curriculum evaluation by college graduates. While studies of this type are conspicuously lacking in the field of geography, a scrutiny of methods and findings of similar studies in other fields provides useful insights and valuable formats for this research.

The Scope and Purpose of Geography

Geography is a very old field of study. Writers of geography were among the earliest scholars of antiquity, and spoken geography must have been widely practiced long before the invention of writing.[1]

Since earliest times, two interdependent, yet often conflicting, concepts of geography have prevailed. One, which has been discarded by most modern scholars, has been the identification of the field as a study of man and his relationship with the physical environment. This became identified as the concept of environmentalism in which the physical environment was viewed as a causal factor in shaping man's activities on the earth. The other, which is today more widely accepted as valid, is the definition of geography as a study of areal associations of phenomena and man's spatial organization of the earth as expressed in terms of patterns and processes. The waxing and waning in popularity of each of these concepts has had a tremendous impact on the development and alterations of college geography curricula in this country. Contemporary curricula

reflect the widely accepted validity of the latter of these concepts relating to the scope and purpose of the discipline. Professional geographers unanimously agree that geography is best identified in terms of its spatial or chronological approach to discovery of knowledge relating to man's occupation of the earth rather than on the basis of any specific body of subject matter which it exclusively investigates. Herein lies the greatest potential for the discipline as a viable element in our present-day college and university curricular framework.

Aside from its contribution to the attainment of a liberal education, a primary task of geography should be the preparation of scholars to utilize the tools and methods of the discipline to investigate and analyze problems facing modern society, and to offer meaningful alternatives for possible solution of those problems. In order to accomplish this task, it is necessary to utilize effectively the manpower and facilities available to train professionals and subprofessionals for rewarding careers in geography.

Despite the acceptance of this philosophy by a majority of American professional geographers, there appears to be surprisingly little awareness of the degree to which undergraduate geography programs are accomplishing the goals implicit in their philosophy. Noted geographer John Fraser Hart's recognition of this glaring weakness of the discipline is evidenced by the following quotation:

> Most geographers appear to know little beyond mere gross numbers, about the students who have taken undergraduate degrees with them. For example, how closely do their first selections of jobs match their declared career objectives? How does this match correlate with their success as students? How do the graduates of the departmental program evaluate its effectiveness in their present careers?[2]

As a professional geographer, this author finds these observations and the possible ramifications thereof to be quite disturbing. As enrollments in higher education continue to decline and as curricular requirements become increasingly liberalized, the viability of geography as a discipline will become imperiled if questions such as those posed by Hart remain unanswered. Geographers can ill-afford to shield themselves from an invasion by hedonistic barbarians by withdrawing to an ivory tower shrouded in nineteenth century theory and methodology. Rather contempory geography programs must be structured to meet the needs of a dynamic society. Hopefully, research such as this will contribute to the determination of these needs.

Commission on College Geography Reports

Among the various reports emanating from the Commission on College Geography, the one which has the greatest significance for this study is entitled Undergraduate Major Programs in American Geography. Published in 1968, this report is a summary of research on undergraduate major programs in geography at 45 sample institutions in the United States. The research was conducted by the Panel on Program

Inventory and Development appointed in 1967 by the Commission for the purpose of developing guidelines to assist geography departments in improving their undergraduate programs.[3] From the initial 45 sample schools included in the preliminary survey, five were selected for intensive analysis.[4] While the bulk of the report is devoted to a detailed description of the programs in these five institutions, the preliminary section, in which a consensus of findings and recommendations based upon both the general and detailed departmental curricula investigations is presented, was found to be the most valuable for the present study.

The following viewpoints expressed by John Fraser Hart in the introductory section of the report seem to be especially relevant:

> While geographers should be concerned with curricular revision and improvement, there are many reasons why no individual or group should presume to set forth an ideal, or even a recommended program in geography. In the first place each educational institution is unique. It has its own history, its own traditions, and its own distributive requirements. A curriculum which is successful at one institution could be a failure if transferred in toto to another. Secondly, an educational system must be dynamic, reflecting changes taking place in the discipline. Thirdly, a curriculum may list course titles but that is no assurance that the content of courses is the same. Fourthly, any model curriculum tends to develop an aura of sacrosanctity despite the fact that many of its components may be inappropriate in a local situation. Finally, an educational program can be no better than those responsible for its implementation. It can be improved only by upgrading the quality of instruction and attracting high caliber students.[3]

> Undergraduate programs in geography have a greater degree of similarity than is commonly

> realized. The consensus geography program probably has not changed much in at least two decades. A matter well worth pondering is whether this curricular persistence is indicative of excellence or inertia.[4]
>
> Unfortunately, few geography departments adequately maintain contacts with the school systems which feed them or the alumni which they produce. Recruitment would be enhanced by the organization of special programs to honor outstanding high school students and alumni days to inform graduates of the latest developments in the department and in the profession.[5]
>
> Undergraduate major programs in geography appear to have been structured in terms of traditional topics and course titles, not in terms of the needs of individual students enrolled in them. It might be possible or desirable to develop a student-oriented program by determining what we expect a person with a baccalaureate degree in geography to know, to know about, and to know how to do. Then we might be able to structure a program, not just a sequence of courses, to inculcate these attitudes, this knowledge and these skills most efficiently and effectively.[6]

Another Commission report of considerable value to this research was published in 1965 as part of the Geography in Liberal Education Project. Geography in Undergraduate Liberal Education was intended to be a vehicle for defining the place and purpose of geography in liberal education and to stimulate future actions to improve the content of College undergraduate courses.[7]

Authors of the report emphasize that apart from the role geography plays in professional and technical education, the discipline has an obligation to educate the citizenry of the United States so that they might better be able to cope with domestic problems and participate intelligently in foreign affairs. This requires a basic knowledge

of the earth's regions and peoples.[8] As John F. Lounsbury, director of the project states:

> Geography courses in liberal education programs should be designed to broaden the student's sphere of interest by adding the spatial dimension to his studies of features and processes to help prepare him for responsible citizenship and to instill a desire for continued learning about the world around him. They should provide the student with a conceptual framework within which he can appraise facts and theories from related disciplines.[9]

The report provides valuable suggestions for curricular implementation of geographic methods and concepts at the high school and college levels. Also discussed are the role of geographic study of foreign areas and cultures in liberal education, the potential contribution of cartography and physical geography in the liberal arts, and the role of geography in government.

The assertion which seems most applicable for this research is that "the traditional content as well as the modern perspectives and techniques of geography should form a basic part of college liberal education programs."[10] Professional geographers have an obligation to see that geographic literacy is being transmitted effectively to students in American higher education. This would appear to require continual evaluation and upgrading of geography curricula to meet the perceived needs and interests of future students of geography in liberal as well as professional or technical education.

Related Studies on Curriculum Evaluation

A thorough search of available literature revealed that while geographers apparently have not conducted studies similar to the present one, several curricular research efforts in other fields have provided methodological information considered to be extremely useful in the preparation and analysis of data in this study. The following sections contain a summary of the findings of the most pertinent of those related studies and their implications for this research.

The Michigan State College Study[11]

This 1953 study, consisting of two parts, analyzed the responses of 737 graduates of the Animal Industries Curriculum at Michigan State College. The first part asked graduates to evaluate specific courses, and the second part requested their assessment of the value of several general fields of study.

Results showed that the graduates felt a strong need for more courses emphasizing practical training, and a desire for better guidance and counseling. While a need for better teaching methods or better instructors was felt, these students did not select courses on the basis of the teacher's personality or demonstrated teaching ability. In addition, approximately one-third of the graduates preferred a curriculum which combined broad training with some degree of specialization.

The Colorado State College Study[12]

The objective of this 1961 study was to survey graduates of the Industrial Arts Teacher Education Program at Colorado State College to reveal their attitudes toward the effectiveness of their major program in order to determine if curricular changes or improvements should be made.

The findings of the research indicated that graduates saw the need for curricular improvement in teaching methodology courses and in the achievement of a better understanding of curriculum problems relating to industrial arts. Graduates also perceived a need for expansion of the Industrial Arts curriculum at Colorado State College to include more courses to prepare them for greater specialization in certain areas in which their employment required them to be proficient.

The Indiana University Study[13]

This study, conducted in 1969, dealt with measuring the relevance of Indiana University Business Education and Office Management Curricular programs in light of occupational experiences of graduates. The research was conducted in two parts: (1) the identification of objectives and content of Business Education curricula; and (2) the use of a questionnaire designed to obtain graduates' opinions of the occupational relevance of various curricular elements. Analysis of data from both parts of the research involved drawing logical inferences from the evidence obtained.

The conclusions derived from the research were that the curricula were perceived by the graduates to be largely adequate in terms of preparation for employment experience. The weaknesses identified by the graduates tended to relate to insufficient depth of preparation rather than to lack of curriculum coverage.

New York State Applied Arts and Sciences Institute Study[14]

The purpose of this study, conducted in 1958 by Bernard Corbman, was to determine the effectiveness of the curriculum of the retail distribution department in preparing graduates from 1947-1953 for careers in retailing and to ascertain alterations needed in the curriculum to provide better occupational training in light of the respondents' experiences. The data were gathered by means of a questionnaire prepared by the researcher and submitted to the departmental faculty for criticism. Questions in the instrument were designed to garner information regarding employment history, opinions concerning cooperative training, recommendations for curriculum additions, suggestions for additional educational pursuits, and general comments. The questionnaire was tested in a pilot study on a representative group of graduates, revised, then mailed to all the graduates in the study population. With the aid of follow-up letters, post-cards, and telephone calls, 75.5 per cent of the questionnaires were completed and returned.

Two noteworthy methods were employed to increase the credibility and objectivity of the research. The credibility of responses to the questionnaire was established by comparing the graduates' answers to the pilot study instrument with their responses to the revised questionnaire. Objectivity was insured by submitting the data to a panel of experts in the retailing field for comments and criticisms.

The conclusions of the study considered most significant for this research were that while the curriculum was perceived by the graduates to be satisfactory for career training in retailing, further studies should be undertaken in the future to examine graduates' opinions of the quality of the general education segment of the retailing major program, and the entire program should be re-evaluated for relevance in a similar study several years hence.

The Oklahoma State University Study[15]

In 1969, Robert B. Clark of Oklahoma State University conducted a study wherein the Accounting curriculum of Kansas colleges and universities was evaluated retrospectively by graduates of those institutions. The purpose of the research was twofold: to determine the effectiveness of accounting education as expressed by graduate satisfaction with various elements of the curriculum, and to construct a composite profile of the population being studied in order to assist the involved departments in future development.

In order to obtain the data to be used in the research, a questionnaire was developed by the author with the assistance and advice of several professionals in the field of accounting education. This questionnaire was designed to obtain information pertaining to the total undergraduate program, the accounting major, college advisement, accounting internship, professional accountancy, part-time work experience, the Graduate Record Examination, graduate study and employment history. The questionnaire was comprised of a total of 56 items related to the aforementioned categories.

The completed questionnaire along with a transmittal letter was then mailed to 1,250 graduates of six Kansas colleges and universities from 1960-1966. Of this number, 1,100 were located and became the final population for the study. A follow-up letter and another copy of the questionnaire were sent to the final population 24 days after the initial mailing. Completed questionnaires were received from 655 or 59.5 per cent of the population, and from these the data for the research were obtained.

Much of the data obtained from the research instrument was descriptive and not subjected to statistical analysis. However, where it was desirable to compare and contrast data regarding graduate satisfactions, the Chi-Square test was utilized to determine significant differences among the data collected. In addition, the Coefficient C was employed to measure the degree of association between variables.

The findings of the study revealed much information

related to curriculum assessment which seems to be applicable and valuable for this similar study in the field of geography. The following conclusions based on this information seem to be warranted:

1. A shorter research instrument and a follow-up contact by telephone should encourage a larger percentage of the graduates to respond.
2. Construction of the questionnaire to allow rapid transfer of information to punch cards for computer analysis should facilitate assimilation and processing of data.
3. Studies of this type, if undertaken periodically by academic departments, should assist in the maintenance of updated records of graduates. This should assist in recruitment of future students and continuing evaluation of curricular programs.

As stated previously, while these reviewed research studies are not concerned with the discipline of geography, it is felt that each contributes significantly to the total literature relating to curriculum evaluation by graduates of educational institutions. In this respect they provide meaningful comparative data for use in interpretation of the data collected in this research. The study by Clark (because of its quality and comprehensiveness) was selected for use as the format for the present study. In addition, Dr. Clark was available for frequent consultation and was

able to provide valuable suggestions which helped to assure the success of this study.

Summary

The necessity of evaluation of geographic education is widely recognized by professionals in the field. However, research which seeks to solicit the opinions of graduated majors concerning the effectiveness of the curricular programs to which they were subjected is seriously lacking. It is in an attempt to reduce this deficiency that this research has been conducted.

FOOTNOTES

[1]Preston E. James and Clarence F. Jones, American Geography Inventory and Prospect, Second Printing (Syracuse, 1964), p. 4.

[2]Undergraduate Major Programs in American Geography, Commission on College Geography Publication No. 6 (Washington, 1968), p. 12.

[3]Ibid., p. 1.

[4]Ibid., p. 12.

[5]Ibid., p. 11.

[6]Ibid., p. 13.

[7]Geography in Undergraduate Liberal Education, Commission on College Geography Publication No. 1 (Washington, 1965), p. v.

[8]Ibid., p. 1.

[9]Ibid., p. 3.

[10]Ibid., p. 1.

[11]Howard Carl Zindel, "A Study of Graduate Reaction to the Animal Industries Curricula of Michigan State College," Dissertation Abstracts, Vol. 5, No. 14 (1953), p. 801.

[12]William Rentz Erwin, Jr., "A Survey of the Curriculum for Industrial Arts Teacher Education at Colorado State College Based Upon the Responses of Graduates from 1950 to 1960," Dissertation Abstracts International, Vol. 1, No. 24 (1962), p. 188.

[13]Mary Ellen Adams, "A Study of the Relevancy of the Indiana University Business Education and Office Management Curricular Programs to the Occupational Experiences of Graduates," Dissertation Abstracts International, Vol. 11-A, No. 30 (1969), p. 4868.

[14]Bernard P. Corbman, "An Evaluation of the Retail Distribution Curriculum of a Technical Institute Based Upon the Work Experience of Its Graduates," Dissertation Abstracts, Vol. 6, No. 18 (1958), p. 2075.

[15]Clark, pp. 1-224.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this chapter is to discuss procedures and methods utilized to accomplish the following research objectives: (1) to assess the relevance of the geographic education to which a selected population of college graduates has been subjected, with relevance being defined by the individual graduate in terms of his stated satisfactions with various phases of undergraduate geography training; and (2) to obtain a composite profile of the graduates for the purpose of providing information to assist the involved departments in future curriculum review and planning.

A presentation of the research population and sample is followed by a detailed discussion of the data collection instrument including its construction, validation, distribution, and response.

Finally, the statistical procedures and methods used to analyze the data obtained by the survey instrument are described and discussed.

The Population and Sample Studied

The population for this study consisted of those geography majors who received undergraduate degrees from five state-supported institutions of higher education in the state of Oklahoma from 1967 through 1972. These institutions were Central State University, East-Central State University, Northeastern State University, Oklahoma State University, and the University of Oklahoma. In order to facilitate presentation of tabulated data, the aforementioned schools will be abbreviated respectively as follows: CS, ECS, NES, OSU, and OU throughout the remainder of this dissertation.

The total population is comprised of 198 graduates of these institutions as presented in Table I.

The data for this study were collected by means of a mailed questionnaire, the construction of which is discussed in the succeeding section of this chapter. The names of the graduates were supplied by the geography department of each institution participating in the study. The most recent address of each graduate was obtained from alumni and registrar office records of the respective schools. Subsequently, the addresses were verified by referral to the most current telephone directory listings. The questionnaire was then mailed to each graduate for whom an address was confirmed. Addresses were unobtainable for six graduates. Thus, the population available for the initial mailing was reduced to 192. If the questionnaires were returned

TABLE I

TOTAL POPULATION BY INSTITUTION GRANTING BACCALAUREATE DEGREE AND BY YEAR IN WHICH DEGREE WAS CONFERRED

Institution	Calendar Year of Baccalaureate Degree						Total
	1967	1968	1969	1970	1971	1972	
CS	5	5	5	9	7	14	45
ECS	5	5	6	13	8	8	45
NES	2	3	5	3	7	13	33
OSU	4	4	7	11	5	9	40
OU	9	4	4	3	7	8	35
Total	25	21	27	39	34	52	198

undeliverable, an attempt was made to contact the graduate by telephone to obtain an accurate address. If this proved to be unsuccessful, the returned questionnaire was remailed to the parents of the graduate with instructions to please forward to the person being sought. If the instrument were again returned undeliverable, the graduate was presumed to be unavailable for this study. Of the 192 graduates to whom the questionnaire was originally mailed, 18 finally were classified as unavailable. Delivery is presumed to have been made to the remaining 174 individuals, and these became the sample for this research. Table II presents this sample in terms of the institution which granted the degree and the year in which the baccalaureate degree was conferred.

The Survey Instrument

The construction of an instrument which purports to measure attitudes or perceptions of a selected group of respondents is a difficult task. After considerable deliberation, consultation with several professionals in higher education and geography, and an exhaustive perusal of other educational research instruments, it was decided that a mailed questionnaire would be the most likely means by which responses from the largest number of graduates could be elicited.

While many avenues could be explored which relate to a graduate's perceptions of the relevance of his major program, it was deemed necessary (in order to reduce the scope of the

TABLE II

SAMPLE AND SUBSAMPLES INCLUDED IN THE STUDY

Institution	Calendar Year of Baccalaureate Degree						Total
	1967	1968	1969	1970	1971	1972	
CS	4	4	4	7	6	13	38
ECS	3	4	6	13	6	6	38
NES	2	3	4	3	5	13	30
OSU	4	3	7	9	5	8	36
OU	8	4	4	3	6	7	32
Total	21	18	25	35	28	47	174

study and the length of the questionnaire) to frame the questions from four general categories: the geography major, college advisement, graduate study, and employment history. Specific questions were then formulated to obtain information regarding graduates' attitudes toward and satisfactions with various elements in each of the aforementioned areas. The questions were designed to be as concrete and detailed as possible in order to minimize variations in interpretation and to reduce misunderstanding on the part of respondents.

The original questionnaire was submitted to each member of the author's Doctoral Committee and to the geography faculty at each institution being studied for comments and criticisms. Several excellent suggestions for improvement of the instrument were received and subsequently incorporated into the revised copy which was resubmitted to the Committee for final approval.

The next step in preparation of the questionnaire was its validation. In order to accomplish this, it was given to a number of geography graduate students at Oklahoma State University to determine both their understanding of the intent of the instrument and also the average length of time required to complete it. A statistician in the education department and a computer programmer also were consulted to ascertain the applicability of various items to desired techniques of statistical analysis.

Prior to the initial mailing of the questionnaire, a

transmittal letter explaining the purpose of the instrument and stressing the potential significance of the research was drafted by the author. These letters were personalized for the graduates of each institution by specific reference to the school and the department chairman cooperating in the research. In addition, enclosure letters were obtained from the chairman of each participating geography department in order to reaffirm the potential value of such a study to the graduate's alma mater and to restate the importance of a prompt response to the questionnaire.

Copies of the final revised questionnaire, the letter of transmittal and the enclosure letters are included, respectively, in Appendices A, B, and C of this dissertation.

Data Collection

On June 14, 1974, a copy of the questionnaire, transmittal and enclosure letters and a stamped self-addressed envelope were sent to each of the 192 graduates included in the study population. Four weeks later a follow-up letter along with another questionnaire was mailed to each graduate. A copy of this follow-up letter is included as Appendix D of this thesis.

Undelivered questionnaires were returned from 41 members of the population. Of these 41, 18 finally were determined to be unavailable for this study, thus reducing the sample for consideration to 174. At the time of the mailing of the follow-up letter, 64 questionnaires had been completed and

returned. No additional attempt to contact the graduates was made beyond the follow-up letter.

On September 28, 1974, 104 or 59.7% of the questionnaires which had been mailed and presumed delivered to the 174 available graduates were completed and returned. Others which were returned after this date were not considered for purposes of this research.

A tabulation of the completed questionnaires received from the graduates of each institution along with the percentages of the sample and subsamples is presented in Table III.

Analysis of Data

Much of the data obtained from the questionnaire for the purpose of presentation in this study were not treated statistically. Rather, they were utilized as descriptive material in the construction of a profile of the Oklahoma undergraduate geography major. However, in order to enhance the value of the research, comparative responses of the following groups to the survey instrument were analyzed and treated statistically.

First, two separate groups, one made up of geography graduates from the two universities and the other comprised of geography graduates from the three former state colleges, were formulated.

Second, the sample was separated into five groups, by

TABLE III

COMPLETED QUESTIONNAIRES RECEIVED

Institution	Calendar Year of Baccalaureate Degree						Total
	1967	1968	1969	1970	1971	1972	
CS:							
sample	5	4	4	6	6	13	38
completed	5	2	2	4	3	5	21
per cent	100.0	50.0	50.0	66.6	50.0	38.5	55.3
ECS:							
sample	3	4	6	13	6	6	38
completed	2	2	2	10	2	3	21
per cent	66.6	50.0	33.3	76.9	33.3	50.0	55.3
NES:							
sample	2	3	4	3	5	13	30
completed	0	2	2	3	3	7	17
per cent	0.0	66.6	50.0	100.0	60.0	53.8	56.6
OSU:							
sample	4	3	7	9	5	8	36
completed	3	3	4	7	3	5	25
per cent	75.0	100.0	57.1	77.7	60.0	55.5	69.4
OU:							
sample	8	3	2	5	7	7	32
completed	6	2	2	3	2	5	20
per cent	75.0	66.6	100.0	60.0	28.6	71.4	62.5
Total:							
sample	22	17	23	36	29	47	174
completed	16	11	12	27	13	25	104
per cent	72.7	64.7	52.2	75.0	44.8	53.2	59.7

institution, to permit individual comparisons among institutions.

Third, six groups were formed by year of graduation to facilitate an understanding of changing perceptions of curricula over a specified time period.

Determination of the most appropriate procedures to be utilized in the data analysis was a difficult task largely because of the various types of information generated by the questionnaire. After consultation with a statistician and a computer programmer, nonparametric tests of significance and correlation were considered most appropriate for comparing and analyzing the data. Since nonparametric statistical procedures require few assumptions about the distribution or level of measurement of the variables, many of these techniques may be applied to nominal and ordinal data which do not have well-established metrics.[1] Parametric procedures, on the other hand, require more stringent assumptions concerning the distribution of the data, such as assumption of normality, and they are designed by and large for data with an interval metric.[2]

Since a number of tests might prove useful, the programmer suggested that prepared statistical packages, specifically the Statistical Program for the Social Sciences and the Statistical Analysis System, would facilitate assimilation and analysis of data. Subsequently, information obtained by the survey instrument was coded and subjected to computer analysis. When the computer printouts

were provided, the results of various tests were scrutinized and it was determined that the most useful for purposes of this research were the Fisher's Exact Test, the Chi-Square test, and Phi Coefficient and Cramer's Coefficient of Contingency tests.

The Fisher's Exact, Chi-Square, and Corrected Chi-Square tests are used to ascertain statistical independence of variables being correlated. At the selected confidence level of 95%, if the variables are not statistically independent, then an assumption of dependence is established, and a general null hypothesis stating that no significant association exists among variables being tested may be rejected.

Once an assumption of dependence has been established, it is necessary to determine the degree of association among variables. In order to accomplish this, the Phi Coefficient or Cramer's Coefficient of Contingency tests are applied to the data. Since the statistic of each of these tests is always between 0 and 1, it may be assumed that the nearer the value of Phi or V is to 1, the greater the degree of correlation or association among variables being tested.

The function and computation of each of the tests for statistical independence and degree of association is presented in detail in Appendix E.

FOOTNOTES

[1]Norman H. Nie, D. H. Bent, and C. H. Hall, Statistical Package for the Social Sciences (New York, 1970), p. 3.

[2]Ibid.

CHAPTER IV

THE GEOGRAPHY MAJOR

Introduction

In this chapter and the three chapters succeeding it, the findings of this research are presented and analyzed in the order in which information was obtained from the questionnaire.

The initial biographical information provided by those responding to the survey instrument indicated that of the 104 graduates, 84 (80.8%) were male and 20 (19.2%) were female. An examination of the sex of respondents by institution, however, revealed considerable variation from 60% male and 40% female at OU to 90.5% male and 9.5% female at ECS (Table IV). While several factors might account for these differences, it seems plausible that variations in institutional goals and programs and departmental recruitment policies could help explain much of the difference observed.

Data obtained regarding date of birth indicated that the majority of respondents were of "college age" at the time of their graduation. Interestingly, however, 24 respondents ranged in age from 24 years to 64 years at the

TABLE IV

PERCENTAGE OF MALES AND FEMALES RESPONDING TO THE SURVEY INSTRUMENT FROM EACH OF THE FIVE COOPERATING INSTITUTIONS

Institution	Male Respondents	Per cent	Female Respondents	Per cent	Total
CS	18	85.7	3	14.3	21
ECS	19	90.5	2	9.5	21
NES	14	82.4	3	17.6	17
OSU	21	84.0	4	16.0	25
OU	12	60.0	8	40.0	20
Total	84	xxxx	20	xxxx	104

time they graduated. This would suggest that the college education of these respondents had been delayed or interrupted by one or more events such as military obligations, health problems or difficulties of an economic or academic nature.

A breakdown of respondents by institution granting the baccalaureate degree and by year of graduation is presented in Table V. Variations in the percentage of graduates cooperating in this research from each institution might be attributable to many factors. Among them, institutional and departmental rapport with alumni, accessibility of the graduate for contact by telephone to encourage response to the questionnaire, or proximity of the graduate to the institution from which the degree was received which might facilitate a more active interest in the undergraduate major department would seem to be significant. Variations by year in the number of graduates responding to the research instrument could be accounted for by discrepancies in the total number of geography graduates for various years and institutions, the relative accessibility of more recent graduates, or the closer contact maintained with recent graduates by departments cooperating in this study.

Four types of baccalaureate degrees were conferred to geography graduates of the five institutions included in this study. The percentage of all respondents receiving each of these degrees is shown in Figure 1. A Bachelor of Arts degree was taken by 81 of the 104 respondents. Of

TABLE V

TOTAL NUMBER OF GRADUATES FROM EACH INSTITUTION RESPONDING TO THE QUESTIONNAIRE BY YEAR IN WHICH THE BACCALAUREATE DEGREE WAS CONFERRED

Institution	Calendar Year of Baccalaureate Degree						Total Responses	Per cent
	1967	1968	1969	1970	1971	1972		
CS	5	2	2	4	3	5	21	20.2
ECS	2	2	2	10	2	3	21	20.2
NES	0	2	2	3	3	7	17	16.3
OSU	3	3	4	7	3	5	25	24.0
OU	6	2	2	3	2	5	20	19.2
Total	16	11	12	27	13	25	104	100.0

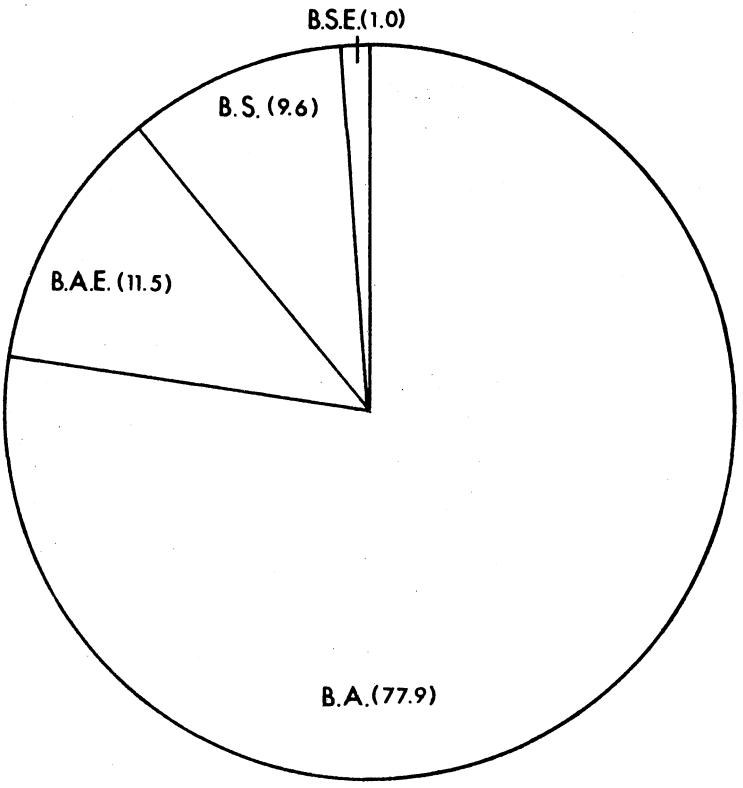


Figure 1. Percentage Distribution of Degrees Received by Graduates of Oklahoma Colleges and Universities, 1974 Study

that number, 41 were graduates of OU and ECS, the only institutions from which all reporting graduates earned the B.A. degree. Twelve graduates indicated they had earned the Bachelor of Arts in Education degree. Of those eleven, eight were graduated from NES and three from CS. The Bachelor of Science degree was received by ten of the respondents, all of whom were graduates of OSU. Only one respondent from NES received a Bachelor of Science in Education degree. Variations in institutional perceptions of the professional status of geography as well as the educational orientation of the schools included in the study might help to explain the type and distribution of degrees received by responding graduates.

In the remaining sections of this chapter, participants' responses to questions asked in the first part of the questionnaire entitled The Geography Major are discussed. The specific items to be analyzed include: reasons for choosing a geography major; when the geography major was chosen; the number of undergraduate geography credits earned; the respondents' overall undergraduate grade averages; the three most beneficial and three least beneficial geography courses in terms of utility in the respondents' post-graduate employment; additional geography courses desired by respondents; respondents' perceptions of the need for additional courses outside of geography; rating of instruction in various areas of geography; information provided by the department regarding career opportunities in geography;

assistance in securing employment provided by departmental faculty members; and, respondents' perceptions of the adequacy of the major program for employment preparation.

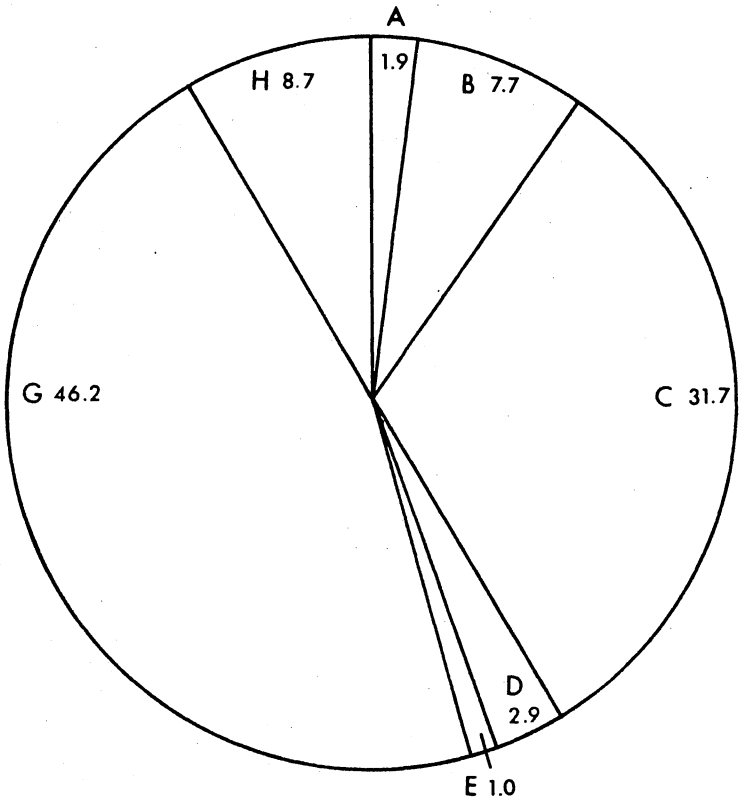
Reasons for Selecting a Geography Major

The respondents were asked to: Rank in 1-2-3 order, with 1 representing the primary reason, the three major factors contributing to the selection of geography as a major field of study:

a. ___ Counseling by high school teachers or counselors.
b. ___ Counseling by college teachers or counselors.
c. ___ Interest in the field stimulated by effective high school or college instruction.
d. ___ Association with other students majoring in geography.
e. ___ Career literature.
f. ___ Aptitude or interest test results.
g. ___ General long-time fascination with the subject.
h. ___ Other (please specify)
i. ___ Other (please specify)
j. ___ No second factor influenced by selection.
k. ___ No third factor influenced by selection.

The primary purpose of the question was to determine the extent of interest generated in geography by the respondents' previous exposures to the field. It is hoped that the information obtained will better enable geography departments cooperating in the study to enhance recruitment of future majors by identifying potential strongholds as perceived by past students of the discipline. Figures 2, 3, and 4 summarize the percentage distribution of responses to the question.

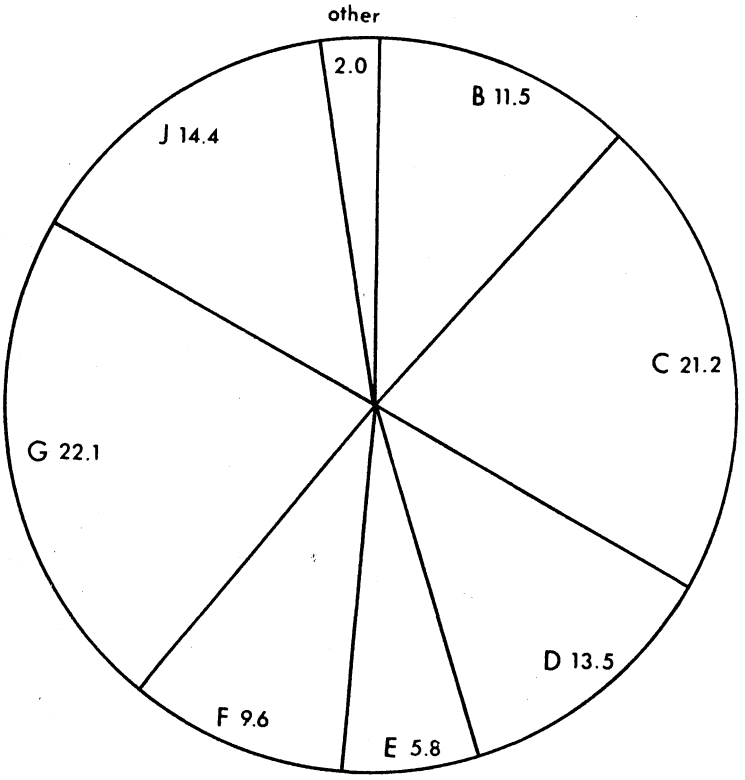
It is interesting to note that "a general long-time fascination with the subject" was the most frequently



Explanation of Letter Codes:

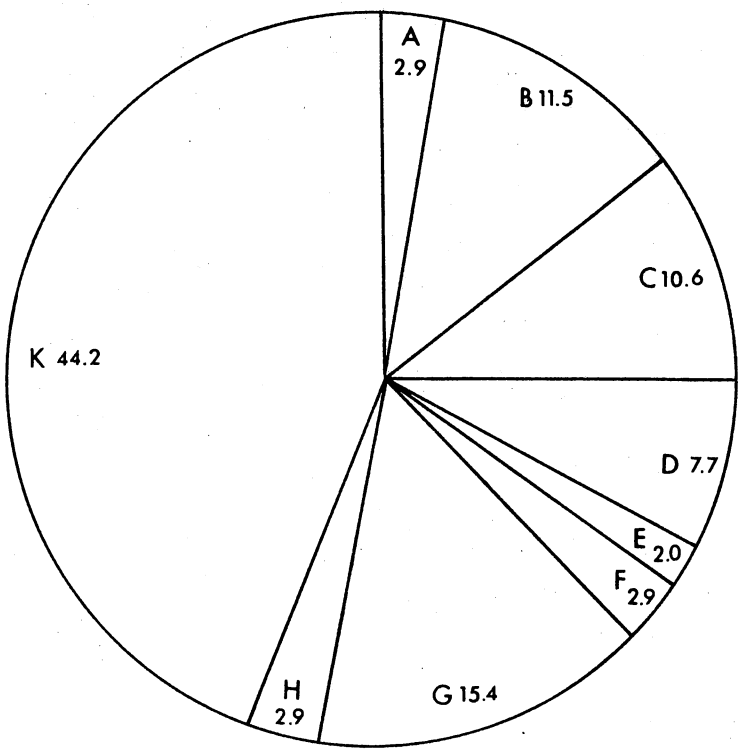
A. Counseling by high school teachers or counselors
B. Counseling by college teachers or counselors
C. Interest stimulated by high school or college instruction
D. Association with other students majoring in geography
E. Career literature
F. Aptitude or interest test results
G. General long-time fascination with the subject
H. Other
J. No second factor influenced my selection
K. No third factor influenced my selection

Figure 2. Percentage Distribution of Primary Reasons for Selecting a Geography Major



Explanation of Letter Codes:
(see Figure 2)

Figure 3. Percentage Distribution of Secondary Reasons for Selecting a Geography Major



Explanation of Letter Codes:
(See Figure 2)

Figure 4. Percentage Distribution of Tertiary Reasons for Selecting a Geography Major

mentioned reason for selecting a geography major. Many of these same individuals later expressed disillusionment with several aspects of their major programs. This would seem to indicate that for some at least, the entree proved to be more palatable than the main course. Assuming that these individuals were aware of the nature of geography as a discipline, their criticisms might suggest that a re-evaluation of several elements of the undergraduate major program might be in order.

The fact that "interest in the field stimulated by effective high school or college instruction" was the second most often cited reason for choosing a major in geography should provide encouragement for professional geographers endeavoring to improve classroom teaching techniques.

The value of a strong system of advisement at both the high school and college levels was indicated by the large percentage of respondents who felt that counseling was a significant factor leading to their choice of geography as a major field of study.

Because more than 24% of the respondents stated that "association with other students majoring in geography" was an important factor encouraging them to major in the field, it would behoove faculty members to wholeheartedly support organizations and activities which help to increase contacts between majors and non-majors, particularly those who have expressed an interest in or aptitude for geography.

Since relatively few (8.8%) of the surveyed graduates

felt that career literature was a motivating factor in their selection of an undergraduate major, it seems plausible that greater efforts on the part of departments and professional organizations of geography to publicize employment opportunities might be well-rewarded.

Among other reasons offered for selecting a geography major, a desire to travel, an abiding interest in foreign lands and cultures, and the influence of family and friends were the most frequently mentioned.

The Educational Level at Which a Geography Major Was Chosen

The respondents were asked: When did you decide to major in geography?

a. ___ Before enrolling in college.
b. ___ During freshman year.
c. ___ During sophomore year.
d. ___ During junior year.
e. ___ During senior year.

The principle objectives of the foregoing question were: to provide information which should help professional geographers determine at which stage of a student's educational development a more effective recruitment program for majors is needed; and, to discover what, if any, relationship exists among the level at which the major was chosen and the number of credit hours earned in geography, the opinions regarding the success or failure of the major program in preparing the respondent for graduate study or

successful employment, and the respondents' perceptions of advisement quality.

Predictably, the majority of those responding to the questionnaire (62.5%) chose a geography major during the sophomore year. In contrast with the Clark study which revealed that over 52 per cent of the respondents had elected to major in accounting before their sophomore year,[1] Table VI shows that a relatively small number (15.4%) of graduates selected a geography major before their sophomore year in college, possibly because institutional policies encourage the postponement of a major selection or because few students prior to the end of their freshman year are aware of potential careers in geography. The establishment of an earlier and more widespread recruitment of potential majors, the upgrading of high school geography programs, and the improvement of geography's public image might help to rectify this situation.

As might be expected, the majority of graduates who selected a geography major during or prior to their sophomore year earned more credit hours in the field than those who delayed their choice of a major until the junior or senior year. However, no statistically significant association was revealed between the level at which the major was chosen and the respondents' perceptions of the preparatory value of their geography programs for subsequent graduate study or post-graduate employment. A more prudent selection of geography courses by delayed majors or a limited practical

TABLE VI

EDUCATION LEVEL AT WHICH RESPONDENTS SELECTED AN UNDERGRADUATE MAJOR IN GEOGRAPHY

Level	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
Before enrolling in college	1	4.8	2	9.5	1	5.9	0	0	2	10.0	6	5.8
During freshman year	2	9.5	1	4.8	0	0	6	24.0	1	5.0	10	9.6
During sophomore year	13	61.9	13	61.9	14	82.3	14	56.0	11	55.0	65	62.5
During junior year	5	23.8	3	14.3	2	11.8	4	16.0	5	25.0	19	18.3
During senior year	0	0	2	9.5	0	0	1	4.0	1	5.0	4	3.8
Total	21	100.0	21	100.0	17	100.0	25	100.0	20	100.0	104	100.0

value of geography courses in general might help to explain this lack of statistical significance. Regardless, it should provoke a judicious assessment of both the quantity and quality of course offerings by those involved in curriculum evaluation.

No significant differences were discerned among respondents' ratings of advisement factors, irrespective of the educational state at which the geography major was chosen.

Number of Credit Hours Earned in Geography

Respondents were asked: How many semester credit hours of geography did you earn as an undergraduate?

a. ___ 18-21
b. ___ 22-25
c. ___ 26-30
d. ___ 31-35
e. ___ 36 or more

The purpose of the question was to provide an independent variable or standard to be used in evaluating graduates' perceptions of the adequacy of various phases of the major program.

Responses, as shown in Table VII, revealed that 70 per cent of the graduates earned 31 or more credit hours in geography while only 8.7 per cent earned 25 hours or less. This would seem to suggest that quantitatively, at least, departmental course offerings are comparable to those at other institutions with undergraduate major programs in geography.

TABLE VII

NUMBER OF CREDIT HOURS EARNED
IN GEOGRAPHY BY RESPONDENTS

Credit Hours	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
18-21	2	9.5	0	0.0	1	5.9	0	0.0	0	0.0	3	2.9
22-25	2	9.5	0	0.0	1	5.9	0	0.0	3	15.0	6	5.8
26-30	4	19.1	2	9.5	3	17.7	3	12.0	7	35.0	19	18.3
31-35	6	28.6	11	52.4	5	29.4	14	56.0	8	40.0	44	42.3
36 or more	7	33.3	8	38.1	7	41.1	8	32.0	2	10.0	32	30.7
Total	21	100.0	21	100.0	17	100.0	25	100.0	20	100.0	104	100.0

Interestingly, if institutional variations in responses are scrutinized, OU with only two graduates reporting 36 or more credit hours and CS with two graduates having earned 21 hours or less appear to be the most unique. The year the graduates chose a geography major or departmental or institutional policies governing the emphasis on major versus non-major courses might have attributed to these observed differences.

No statistically significant association between the respondents' assessment of other phases of the major program and the credit hours earned in geography was observed.

Overall Undergraduate Grade Average

In an attempt to discover any relationships between grades and other factors researched through the questionnaire, graduates were asked in question 4:

During your undergraduate work what would you estimate your overall grade-average to be?

a. ___ A
b. ___ A-
c. ___ B+
d. ___ B
e. ___ B-
f. ___ C+
g. ___ C
h. ___ C-
i. ___ Below C

Assuming that the average college graduate attains an overall grade-average of C, results of this question would suggest that geography students responding to this survey were scholastically above-average as undergraduates (Table VIII).

TABLE VIII

OVERALL UNDERGRADUATE GRADE-POINT AVERAGE REPORTED BY RESPONDENTS

GPA	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
A	0	0	1	4.8	1	5.9	1	4.0	1	5.0	4	3.9
A-	3	14.3	1	4.8	2	11.8	0	0	1	5.0	7	6.7
B+	5	23.8	6	28.6	5	29.4	3	12.0	3	15.0	22	21.1
B	2	9.5	4	18.9	3	17.6	5	20.0	5	25.0	19	18.3
B-	5	23.8	1	4.8	3	17.6	9	36.0	3	15.0	21	20.2
C+	6	28.6	7	33.3	1	5.9	7	28.0	4	20.0	25	24.0
C	0	0	1	4.8	2	11.8	0	0	3	15.0	6	5.8
Total	21	100.0	21	100.0	17	100.0	25	100.0	20	100.0	104	100.0

No significant relationship between grades earned and other factors studied could be identified.

The Three Most Beneficial Courses for Post-Graduate Employment

In question 5 of the survey instrument respondents were asked:

> Of all the geography courses taken in your major program, which would you consider to be the three most beneficial in terms of utility in your post-graduate employment? (List courses and reason for high rating.)

Seventy-four of the 104 graduates responding to the questionnaire answered the preceding question. A tabulation of responses to the question is presented in Table IX. Many factors may have limited the number of responses to the question. Several respondents were pursuing graduate study and may never have been employed in a full-time job. Others obtained employment in a field unrelated to geography. Some, undoubtedly, found undergraduate geography courses too unspecialized to be of practical value in their chosen profession.

However, responses to the question should yield sufficient information to enable geography departments involved in the study to evaluate qualitatively courses included in their respective undergraduate curriculums in light of perceptions of former graduates. Therein lay the primary

TABLE IX

THE THREE MOST BENEFICIAL UNDERGRADUATE GEOGRAPHY COURSES IN TERMS OF UTILITY IN POST-GRADUATE EMPLOYMENT

Course	Institution					Total Responses
	CS	ECS	NES	OSU	OU	
Intro. Physical Geography	7	6	5	5	9	32
Cartography	0	8	0	10	6	24
Prin. of Economic Geography	4	3	2	7	6	22
Intro. Urban Geography	1	1	1	10	2	15
Conservation of Natural Resources	3	7	0	3	0	13
Intro. to Social or Cultural Geography	2	0	1	6	3	12
World Regional Geography	1	0	5	0	4	10
Political Geography	3	2	2	1	1	9
Human Geography	3	1	2	0	1	7
Geog. of Anglo-America	2	1	3	0	1	7
Historical Geog. of U.S.	0	0	3	3	0	6
Field and Survey Techniques	0	1	0	0	4	5
Others	10	9	11	12	8	50
Total	36	39	35	57	45	212

objective of this question and the one which follows it.

In order to assist respondents in recalling courses taken as undergraduates, a list of courses offered by cooperating institutions was included in the questionnaire (Appendix A).

Introduction to Physical Geography was the course most frequently mentioned as being beneficial. Graduates of all involved institutions most frequently mentioned the outstanding quality of instruction and the wide range of topics and essential geographic concepts covered as reasons for rating the course highly. Respondents who rated cartography as one of their three most beneficial courses cited the direct application of its techniques in an employment situation as the principal factor contributing to its high rating. Principles of economic geography was rated highly because the majority of graduates felt that the basic concepts were of practical value in their line of work and that the quality of instruction was superior.

Overall, it would appear that introductory courses, because of their broad coverage, and courses which required the mastery of a particular skill were perceived by most respondents as being of the greatest benefit in terms of employment utility. This might suggest that a curriculum which emphasizes comprehension and applications of concepts or basic skills and methods of geographic analysis would be desirable, particularly for students pursuing only an undergraduate degree in geography.

The Three Least Beneficial Courses for Post-Graduate Employment

Question 6, in attempting to identify areas of weakness in the undergraduate curricula, was stated as follows:

> Of all geography courses taken in your major program, which would you consider to be the three least beneficial in terms of utility in your post-graduate employment? (List courses and reason for low rating.)

The courses most frequently mentioned by the 72 graduates as being of little utility in post-graduate employment are presented in Table X. Categorically, regional courses were cited as least beneficial more often than were topical courses. The greatest weaknesses of regional geography courses were in the respondents' opinion, the poor quality instruction and the repetitive and descriptive nature of the content. Topical courses, particularly Economic Geography and Political Geography, received low ratings because of their theoretical or abstract rather than practical approach to the identification and solution of contemporary problems. The instructors' apparent lack of interest and of ability to communicate ideas also were offered as reasons for low ratings.

A survey of responses by institution yields the following interesting results:

1. The low rating of regional courses is more

TABLE X

THE THREE LEAST BENEFICIAL UNDERGRADUATE GEOGRAPHY COURSES IN TERMS OF UTILITY IN POST-GRADUATE EMPLOYMENT

Course	Institution					Total Responses
	CS	ECS	NES	OSU	OU	
Principles of Economic Geog.	2	2	2	10	4	20
World Regional Geog.	4	6	4	0	1	15
Regional Geog. of Latin America	4	1	4	4	1	14
Regional Geog. of Anglo-America	0	3	4	5	1	13
Political Geog.	0	1	2	6	4	13
Regional Geog. of Asia	0	1	1	8	0	10
Regional Geog. of U.S.S.R.	1	3	4	0	2	10
Regional Geog. of Africa	2	2	3	1	1	9
Regional Geog. of Europe	1	1	2	5	0	9
Historical Geog. of U.S.	1	1	1	1	5	9
Intro. to Physical Geog.	3	0	0	1	2	6
Climatology	2	0	1	2	1	6
Meteorology	1	2	1	1	1	6
Intro. to Urban Geog.	1	1	3	0	1	6
Others	14	11	5	4	6	42
Total	36	35	37	48	32	188

closely associated with graduates of the three former state colleges than with the university graduates, although the association is not statistically significant at the 95 per cent confidence level.

2. Graduates of the two universities mentioned topical courses as "least beneficial" more frequently than did graduates of the former state colleges. Again, however, the association was not statistically significant.
3. Three courses were singled out by numerous graduates of a particular institution as being less than desirable in terms of employment utility: Economic Geography and Regional Geography of Asia by OSU graduates and Historical Geography by graduates of OU.

Obviously, the respondents' evaluations of the employment utility of specific courses were influenced by a wide variety of factors. Some of these, no doubt, were subjective in nature and difficult to identify. However, the general observations by categories should be useful to the geography departments in curriculum planning.

Additional Geography Courses Desired

In that a respondent's perception of the adequacy of the major program is in part, at least, a function of the geography courses taken as an undergraduate, the following

question was asked in order to discover possible areas where the geography curriculum might be strengthened:

> What geography courses do you wish you could have taken but were not offered or could not be worked into your schedule? (Please list)

Ninety respondents (85.4%) answered the question, and of the 258 responses they provided, courses dealing with urban geography or ones requiring the use of geographic skills and methods were the most frequently mentioned (Table XI). The conspicuous absence of regional geography courses from the list would seem to suggest either that graduates perceived them to be of little value or that major programs in the departments being surveyed were heavily weighted toward regional geography.

Variations in responses by institution revealed that only graduates of ECS failed to mention Introductory Cartography as a desirable additional course. Because ECS has a strong cartography program with a minor in the field available for students, it seems likely that the staff and facilities might have permitted or encouraged a greater number of students at that institution to take cartography.

Only respondents from NES did not list Advanced Cartography as desirable, probably because an introductory course in cartography was unavailable to them.

TABLE XI

ADDITIONAL GEOGRAPHY COURSES WHICH RESPONDENTS WOULD HAVE DESIRED

Course	Institution					Total Responses
	CS	ECS	NES	OSU	OU	
Urban Planning	5	3	2	7	1	18
Cartography (Intro.)	6	0	7	3	2	18
Computers in Geographic Analysis	2	2	1	4	6	16
Advanced Cartography	2	5	0	3	2	12
Air Photo Interpretation	3	1	2	3	2	11
Quantitative Methods	0	2	1	4	3	9
Urban Land Use	2	1	1	3	2	9
Problems in Urban Geog.	1	1	0	4	2	8
Intro. to Urban Geog.	3	2	2	1	0	8
Field and Survey Techniques	2	3	1	1	1	8
Meteorology	3	1	1	1	2	8
Advanced Urban Geog.	1	1	0	3	2	7
Phil. and Hist. of Geog.	0	2	0	2	2	6
Remote Sensing	0	1	0	3	2	6
Geog. of Soils	1	2	0	1	2	6
Others	16	21	22	27	22	101
Total	47	48	40	70	53	258

Courses Outside of Geography Desired by Graduates

For the purpose of determining whether respondents felt that geography courses were over-emphasized in their undergraduate programs, the following question was asked:

> Do you think that more emphasis should have been placed on courses outside of geography? If your answer is yes, what courses should have been given more emphasis?

While a large majority of graduates felt that additional emphasis on courses outside of geography would not have been desirable, a statistically significant exception was revealed when the responses were examined by institution. Sixteen OSU graduates (64%) saw a need for more coursework outside of geography (Table XII). Several factors may have contributed to the striking variation in responses between OSU graduates and those from other institutions. Among them the nature of post-graduate experiences, variations in the quality of advisement or differences in departmental policies governing the distribution of coursework in geography versus cognate fields would seem to be significant.

When respondents were grouped into university graduates and graduates of former state colleges, a statistically significant difference was also revealed (Table XIII). Possibly, university graduates perceived a greater need for additional courses outside of geography because the number of hours required or suggested for a major limited their study in cognate fields.

TABLE XII

RESPONDENTS' OPINIONS REGARDING WHETHER MORE EMPHASIS SHOULD HAVE BEEN PLACED ON COURSES OUTSIDE OF GEOGRAPHY

Response	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
Yes	6	28.6	5	23.8	0	0.0	16	64.0	4	20.0	31	29.8
No	15	17.4	16	76.2	17	100.0	9	36.0	16	80.0	73	70.2
Total	21	100.0	21	100.0	17	100.0	25	100.0	20	100.0	104	100.0

χ^2 = 22.48 P = .001 df and Level = 4 ... 95%

Limit = 9.49

V = .46

TABLE XIII

RESPONDENTS' OPINIONS REGARDING WHETHER OR NOT ADDITIONAL EMPHASIS SHOULD HAVE BEEN PLACED ON COURSES OUTSIDE OF GEOGRAPHY
(By Type of Institution)

Response	Type of Institution				Total	
	College	Per cent	University	Per cent	Responses	Per cent
Yes	11	18.6	20	44.4	31	29.8
No	48	81.4	25	55.6	73	70.2
Total	59	100.0	45	100.0	104	100.0

Corrected χ^2 = 6.94 (P = .0085) Degrees of Freedom = 1

χ^2 Limit = 3.84 Confidence Level = 95%

Phi = .26

All departments recognize the importance of coursework in cognate departments, and all colleges and universities have distributive requirements which force undergraduates to sample the range of intellectual fare available to them in the institution.[2] Geography department chairman surveyed in 1966-67 by the Commission of College Geography in a questionnaire concerning undergraduate major programs cited mathematics/statistics, geology/geomorphology, economics and sociology more often than any other courses as preferable or valuable for cognate study for geography majors.[3]

The results of this questionnaire tend to confirm the wisdom of those department chairman. Graduates felt that mathematics/statistics and computer science, interdisciplinary courses in social sciences, and geology were the most highly desirable supplementary courses for an undergraduate major in geography (Table XIV).

Evaluation of Instruction

Respondents were asked to:

Please indicate any area of geography in which you would evaluate the instruction you received as being definitely either superior or inferior, as compared with what you consider average or satisfactory instruction.

a. Physical Geography ___ superior, inferior ___
b. Cultural or Social Geography ___ superior, inferior ___
c. Economic Geography ___ superior, inferior ___
d. Regional Geography ___ superior, inferior ___
e. Urban Geography ___ superior, inferior ___

TABLE XIV

COURSES OUTSIDE OF GEOGRAPHY
DESIRED BY RESPONDENTS

Course	Institution					Total Responses	Per cent of 31 Respondents
	CS	ECS	NES	OSU	OU		
Mathematics, Statistics and Computer Science	2	2	0	11	3	18	58.1
Interdisciplinary Courses in Social Sciences	3	1	0	8	2	14	45.2
Environmental Science	1	4	0	7	1	13	41.9
Geology	2	3	0	3	3	11	35.5
Public Administration	0	1	0	4	3	8	25.8
English Composition and Speech	4	2	0	0	0	6	19.3
Total	12	13	0	33	12	70	

f. Philosophy and Methodology of Geography
___ superior, inferior ___
g. Geographic Education ___ superior, inferior___
h. Historical Geography ___ superior, inferior ___
i. Political Geography ___ superior, inferior ___
j. Environmental Studies ___ superior, inferior ___

Responses of graduates from each institution are presented in Tables XV-XIX. Overall, instruction in physical geography was rated superior by a larger number of respondents (69) than instruction in any other area. Regional geography instruction was rated inferior more often than that of other areas, followed closely by political (23) and historical geography (22).

Variations in rating of instruction likely reflects in part, at least, differing curricular emphases at each of the institutions being studied. Graduates' perceptions of instructional quality might also be influenced by variations in the time elapsed from when the instruction was experienced and when the survey instrument was completed.

While it would behoove educators at each institution to strive for improvement in geographic instruction, results of this questionnaire would seem to suggest that particular attention should be devoted to the following areas where graduates perceived instructional deficiencies: Historial Geography and Philosophy/Methodology of Geography at CS; Cultural and Social Geography at ECS; Geographic Education, Historical Geography, Environmental Studies and Economic Geography at NES; Regional Geography, Geographic Education, Political Geography and Environmental Studies at OSU; and,

TABLE XV

EVALUATION OF AREAS OF GEOGRAPHY INSTRUCTION AS EITHER SUPERIOR OR INFERIOR BY RESPONDING GRADUATES OF CS

Area of Instruction	Superior	Per cent[a]	Inferior	Per cent[a]	Total Responses	Per cent[a]
Physical Geography	13	61.9	3	14.3	16	76.2
Cultural or Social Geography	8	38.1	2	9.5	10	47.6
Regional Geography	14	66.6	2	9.5	16	76.2
Philosophy and Methodology of Geography	2	9.5	5	23.8	7	33.3
Geographic Education	7	33.3	3	14.3	10	47.6
Historical Geography	4	19.0	6	28.6	10	47.6
Political Geography	11	52.4	4	19.0	15	71.4
Environmental Studies	6	28.6	5	23.8	11	52.4
Economic Geography	2	9.5	2	9.5	4	19.0
Urban Geography	4	19.0	1	4.8	5	23.8

[a]Percentages are based upon a total of 21 graduates, some of whom indicated neither a superior nor inferior rating for courses.

TABLE XVI

EVALUATION OF AREAS OF GEOGRAPHY INSTRUCTION AS EITHER SUPERIOR OR INFERIOR BY RESPONDING GRADUATES OF ECS

Area of Instruction	Superior	Per cent[a]	Inferior	Per cent[a]	Total Responses	Per cent[a]
Physical Geography	15	71.4	4	19.0	19	90.5
Cultural or Social Geography	8	38.1	8	38.1	16	76.2
Regional Geography	13	61.9	5	23.8	18	85.7
Philosophy and Methodology of Geography	9	42.9	5	23.8	14	66.6
Geographic Education	4	19.0	3	14.3	7	33.3
Historical Geography	9	42.9	3	14.3	12	57.1
Political Geography	10	47.6	3	14.3	13	61.9
Environmental Studies	12	57.1	3	14.3	15	71.4
Economic Geography	5	23.8	1	4.8	6	28.6
Urban Geography	3	14.3	0	0.0	3	14.3

[a]Percentages are based upon a total of 21 graduates, some of whom indicated neither a superior nor inferior rating for courses.

TABLE XVII

EVALUATION OF AREAS OF GEOGRAPHY INSTRUCTION AS EITHER SUPERIOR OR INFERIOR BY RESPONDING GRADUATES OF NES

Area of Instruction	Superior	Per cent[a]	Inferior	Per cent[a]	Total Responses	Per cent[a]
Physical Geography	14	82.3	2	11.8	16	94.1
Cultural or Social Geography	7	41.2	4	23.5	11	64.7
Regional Geography	9	52.9	6	35.3	15	88.2
Philosophy and Methodology of Geography	4	23.5	2	11.8	6	35.3
Geographic Education	1	5.9	5	29.4	6	35.3
Historical Geography	2	11.8	5	29.4	7	41.2
Political Geography	5	29.4	3	17.6	8	47.1
Environmental Studies	2	11.8	5	29.4	7	41.2
Economic Geography	2	11.8	2	11.8	4	23.5
Urban Geography	2	11.8	1	5.9	3	17.6

[a]Percentages are based upon a total of 17 graduates, some of whom indicated neither a superior nor inferior rating for courses.

TABLE XVIII

EVALUATION OF AREAS OF GEOGRAPHY INSTRUCTION AS EITHER SUPERIOR OR INFERIOR BY RESPONDING GRADUATES OF OSU

Area of Instruction	Superior	Per cent[a]	Inferior	Per cent[a]	Total Responses	Per cent[a]
Physical Geography	15	60.0	4	16.0	19	76.0
Cultural or Social Geography	10	40.0	4	16.0	14	56.0
Regional Geography	6	24.0	11	44.0	17	68.0
Philosophy and Methodology of Geography	7	28.0	2	8.0	9	36.0
Geographic Education	2	8.0	3	12.0	5	20.0
Historical Geography	3	12.0	2	8.0	5	20.0
Political Geography	5	20.0	6	24.0	11	44.0
Environmental Studies	5	20.0	6	24.0	11	44.0
Economic Geography	7	28.0	6	24.0	13	52.0
Urban Geography	5	20.0	3	12.0	8	32.0

[a]Percentages are based upon a total of 25 graduates, some of whom indicated neither a superior nor inferior rating for courses.

TABLE XIX

EVALAUTION OF AREAS OF GEOGRAPHY INSTRUCTION AS EITHER SUPERIOR OR INFERIOR BY RESPONDING GRADUATES OF OU

Area of Instruction	Superior	Per cent[a]	Inferior	Per cent[a]	Total Responses	Per cent[a]
Physical Geography	12	60.0	2	10.0	14	70.0
Social or Cultural Geography	6	30.0	2	10.0	8	40.0
Regional Geography	13	65.0	5	25.0	18	90.0
Philosophy and Methodology of Geography	6	30.0	1	5.0	7	35.0
Geographic Education	1	5.0	1	5.0	2	10.0
Historical Geography	6	30.0	6	30.0	12	60.0
Political Geography	5	25.0	7	35.0	12	60.0
Environmental Studies	5	25.0	2	10.0	7	35.0
Economic Geography	4	20.0	2	10.0	6	30.0
Urban Geography	4	20.0	0	0.0	4	20.0

[a]Percentages are based upon a total of 20 respondents, some of whom indicated neither a superior nor inferior rating for courses.

Political Geography, Historical Geography, and Geographic Education at OU.

Departmental Information Regarding Careers in Geography

It is the opinion of this author that one of the major objectives of any major program in higher education is to inform students of possibilities for vocational utilization of the knowledge and skills attained. Therefore, respondents were asked:

> Did your department provide you with information regarding career opportunities in geography?
>
> a. ___ yes b. ___ no

Responses to this question are summarized in Tables XX and XXI. While no statistically significant differences were ascertained by examining results by institution or by year of graduation, it is interesting to note that only graduates of NES (58.5%) and only those who received degrees in 1968 (66.7%) felt, as a majority, that sufficient information regarding careers was provided. It would appear that the relatively small number of graduates at that institution and for that year might have allowed faculty members to devote more personal attention to the welfare of those graduates. For other institutions and other years the relatively larger number of graduates may have precluded such close faculty contact with students. This would suggest that an evaluation of methods for career information dissemination might

TABLE XX

RESPONDENTS' OPINIONS REGARDING WHETHER OR NOT INFORMATION ABOUT CAREER OPPORTUNITIES IN GEOGRAPHY WAS PROVIDED BY THEIR DEPARTMENTS
(By Institution Granting Degree)

Response	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
Yes	8	38.1	6	28.6	10	58.8	11	44.0	5	25.0	40	38.5
No	13	61.9	15	71.4	7	41.2	14	56.0	15	75.0	64	61.5
Total	21	100.0	21	100.0	17	100.0	25	100.0	20	100.0	104	100.0

χ^2 = 5.70 (P = .22) Degrees of Freedom = 4

Limit = 9.49 Confidence Level = 95%

V = .23

TABLE XXI

RESPONDENTS' OPINIONS REGARDING WHETHER OR NOT INFORMATION ABOUT CAREER OPPORTUNITIES IN GEOGRAPHY WAS PROVIDED BY THEIR DEPARTMENTS
(By Year of Graduation)

	Calendar Year of Baccalaureate Degree													
Response	1967	Per cent	1968	Per cent	1969	Per cent	1970	Per cent	1971	Per cent	1972	Per cent	Total Responses	Per cent
Yes	8	42.1	6	66.7	3	30.0	11	40.7	7	50.0	5	20.0	40	38.5
No	11	57.9	3	33.3	7	70.0	16	59.3	7	50.0	20	80.0	64	61.5
Total	19	100.0	9	100.0	10	100.0	27	100.0	14	100.0	25	100.0	104	100.0

χ^2 = 7.88 (P = .16) Degrees of Freedom = 5

Limit = 11.07 Confidence Level = 95%

V = .27

be in order for each department cooperating in this study.

Departmental Assistance in Securing Employment

In question 11, respondents were asked:

Did any faculty member(s) in your department assist you in securing employment after graduation?

a. ___ yes b. ___ no

One hundred three graduates responded to the question and a large majority of these graduates (80.6%) indicated that assistance in obtaining employment had not been provided by geography department faculty. No statistically significant variations were revealed when responses were examined by institution (Table XXII) or by year of graduation (Table XXIII).

In that negative responses were more numerous than positive ones for each institution surveyed, it would seem to be in order for geography departments to develop means for improving communications with students and for strengthening contacts with potential employers of geography graduates. A recognition by faculty that departmental obligations to students do not end in the classroom should help to alleviate inadequacies in this area.

Adequacy of the Major Program for Employment Preparation

One of the basic purposes of this research was to

TABLE XXII

RESPONDENTS' OPINIONS REGARDING WHETHER OR NOT ASSISTANCE IN SECURING EMPLOYMENT AFTER GRADUATION WAS PROVIDED BY THE GEOGRAPHY DEPARTMENT FACULTY
(By Institution Granting Degree)

Response	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
Yes	5	23.8	3	14.3	6	37.5	3	12.0	3	15.0	20	19.4
No	16	76.2	18	85.7	10	62.5	22	88.0	17	85.0	83	80.6
Total	21	100.0	21	100.0	16	100.0	25	100.0	20	100.0	103	100.0

$\chi^2 = 5.08$ (P = .27) Degrees of Freedom = 4

Limit = 9.49 Confidence Level = 95%

V = .22

TABLE XXIII

RESPONDENTS' OPINIONS REGARDING WHETHER OR NOT ASSISTANCE IN SECURING EMPLOYMENT AFTER GRADUATION WAS PROVIDED BY THE GEOGRAPHY DEPARTMENT FACULTY
(By Year of Graduation)

	Calendar Year of Baccalaureate Degree													
Response	1967	Per cent	1968	Per cent	1969	Per cent	1970	Per cent	1971	Per cent	1972	Per cent	Total Responses	Per cent
Yes	5	26.3	0	0.0	2	20.0	4	14.8	2	14.3	7	28.0	20	19.4
No	14	53.7	8	100.0	8	80.0	23	85.2	12	85.7	18	72.0	83	80.6
Total	19	100.0	8	100.0	10	100.0	27	100.0	14	100.0	25	100.0	103	100.0

$\chi^2 = 4.29$ (P = .50) Degrees of Freedom = 5

Limit = 11.07 Confidence Level = 95%

V = .20

assess the relevance of major programs in geography with respect to how well graduates were prepared to secure and maintain employment. Thus, graduates were asked in question 12:

> Did your geography program adequately prepare you for securing employment and performing duties required of you in your line of work? a. ___ yes b. ___ no
> If you answered no, what is your single most important criticism of departmental deficiency?

Of the 97 graduates who responded to the question, 71 believed that their major programs had not sufficiently prepared them for post-graduate employment. Tables XXIV-XXVI present a breakdown of responses by colleges and universities, by institution and by year of graduation. A statistically significant variation is found only when comparing responses of graduates from the five institutions (Table XXVI). Factors which may have contributed to the relatively higher percentage of NES graduates who felt their programs were adequate include: the relatively superior quality of advisement, the more practical nature of available geography courses, the greater assistance in securing employment provided by faculty at that institution, or the more geographically oriented employment positions obtained by graduates of NES.

Departmental Deficiencies

In Table XXVII, respondents' most important criticism

TABLE XXIV

RESPONDENTS' OPINIONS REGARDING THE ADEQUACY OF THEIR MAJOR PROGRAMS WITH RESPECT TO PREPARATION FOR SECURING EMPLOYMENT AND PERFORMANCE OF DUTIES REQUIRED BY A JOB
(By Type of Institution)

Response	Type of Institution				Total	
	College	Per cent	University	Per cent	Responses	Per cent
Yes	15	28.3	11	25.0	26	26.8
No	38	71.7	33	75.0	71	73.2
Total	53	100.0	44	100.0	97	100.0

Corrected χ^2 = .02 (P = .89) Degrees of Freedom = 1

χ^2 Limit = 3.84 Confidence Level = 95%

Phi = .01

TABLE XXV

RESPONDENTS' OPINIONS REGARDING THE ADEQUACY OF THEIR MAJOR PROGRAM WITH RESPECT TO PREPARATION FOR SECURING EMPLOYMENT AND PERFORMANCE OF DUTIES REQUIRED BY A JOB
(By Institution Granting Degree)

Response	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
Yes	2	10.5	5	23.8	8	61.5	5	20.0	6	31.6	26	26.8
No	17	89.5	16	76.2	5	38.5	20	80.0	13	68.4	71	73.2
Total	19	100.0	21	100.0	13	100.0	25	100.0	19	100.0	97	100.0

χ^2 = 11.47 (P = .02) Degrees of Freedom = 4

Limit = 9.49 Confidence Level = 95%

V = .34

TABLE XXVI

RESPONDENTS' OPINIONS REGARDING THE ADEQUACY OF THEIR MAJOR PROGRAM WITH RESPECT TO PREPARATION FOR SECURING EMPLOYMENT AND PERFORMANCE OF DUTIES REQUIRED BY A JOB
(By Year of Graduation)

	Calendar Year of Baccalaureate Degree													
Response	1967	Per cent	1968	Per cent	1969	Per cent	1970	Per cent	1971	Per cent	1972	Per cent	Total Responses	Per cent
Yes	5	27.8	3	37.5	2	22.2	5	20.0	7	50.0	4	17.4	26	26.8
No	13	72.2	5	62.5	7	77.8	20	80.0	7	50.0	19	82.6	71	73.2
Total	18	100.0	8	100.0	9	100.0	25	100.0	14	100.0	23	100.0	97	100.0

χ^2 = 6.04 (P = .30) Degrees of Freedom = 5

Limit = 11.07 Confidence Level = 95%

V = .25

TABLE XXVII

CRITICISMS OFFERED BY RESPONDENTS WHO FELT THEIR MAJOR PROGRAM WAS INADEQUATE IN TERMS OF PREPARATION FOR EMPLOYMENT

Response	Institution					Total Responses
	CS	ECS	NES	OSU	OU	
Insufficient specialization for employment	5	5	4	1	3	18
Inadequate career information or assistance in securing employment	5	4	2	3	4	18
Lack of departmental interest in undergraduate's welfare	2	1	1	3	5	12
Degree did not help to secure job	3	3	2	2	1	11
Poor interpersonal relationships between faculty and undergraduates	1	2	0	3	2	8
Irrelevant material emphasized in courses	2	2	2	1	0	7
Too much faculty time and interest devoted to graduate students	0	0	0	3	4	7
Overemphasis on regional geography	1	0	0	2	3	6
Courses too theoretical	0	0	0	4	2	6
Limited courses available	0	0	2	3	0	5
Poor departmental facilities	1	0	1	2	0	4
Geography courses intellectually unchallenging	1	1	1	0	0	3

of departmental deficiency are enumerated. The following suggestions for possible rectification of the more widely perceived deficiencies would seem to be in order:

1. If major programs at the institutions studied are to provide more than a liberal education for graduates, some effort to develop at least a limited specialization for terminal undergraduates might be well-rewarded.

2. A concerted effort on the part of faculty to more effectively assimilate career literature and maintain contact with prospective employers for the benefit of all students seems imperative.

3. Faculty should attempt to divide time and attention devoted to graduate students and undergraduates more equitably, particularly at OSU and OU.

4. A re-evaluation of the type and number of courses offered might upgrade the practical value of geography curricula.

5. Institutional efforts to improve departmental instructional facilities should enhance the delivery of educational services to future students.

Since the majority of respondents from institutions other than NES expressed dissatisfaction with the preparatory value of their major programs, it might be advisable for those departments to constructively re-assess their goals and objectives of undergraduate education or to better clarify present goals and objectives for future students.

Summary

Results of graduates' responses to questions included in the section entitled The Geography Major show that:

1. A much larger proportion of geography graduates surveyed were males.
2. A majority of graduates were recipients of a Bachelor of Arts degree and were of "college age" at the time the degree was conferred.
3. The most important reason given by graduates for choosing a geography major was "a general long-time fascination with the subject." However, a large number also cited effective instruction and college counseling as influencing their selection.
4. A majority of respondents selected a geography major during their sophomore year and earned 31 or more credit hours in geography.
5. Most respondents had an overall grade average of B- or higher for their undergraduate work.
6. Courses indicated most frequently as being beneficial in post-graduate employment were Physical Geography, Cartography and Economic Geography while Economic Geography, Political Geography and regional geography courses were most often perceived as being of little utility in an employment situation.

7. Geography courses mentioned most often by respondents as being desirable but unavailable were Urban Planning, Cartography, Computers in Geographic Analysis and Air Photo Interpretation.

8. A majority of graduates felt that more emphasis on courses outside of geography was unnecessary. Those who disagreed expressed a desire for additional cognate courses in mathematics/ statistics/ computer science, social science, environmental science and geology.

9. Relatively few graduates rated instruction in geography courses as inferior. Superior rating were numerous and physical geography instruction was rated more highly than that in any other area.

10. A majority of respondents from all institutions except NES indicated that insufficient career information was provided by their major departments and most graduates irrespective of institution felt that departmental assistance in securing employment was inadequate.

11. NES was the only institution whose graduates felt as a majority that their major program in geography adequately prepared them to secure employment and to perform the duties required by their jobs.

FOOTNOTES

[1]Clark, p. 84.

[2]*Undergraduate Major Programs in American Geography*, p. 60.

[3]Ibid., p. 62.

CHAPTER V

COLLEGE ADVISEMENT

Introduction

When one examines results of research on student dropout, it becomes obvious that there is a crucial need for improved guidance and counseling services at the college level. In publicly supported colleges and universities with non-restrictive admissions policies, almost one-half of the freshman students fail to return to school for their sophomore year; and, nearly one-fourth of those who do return as sophomores do not enroll as juniors.[1] While there are undoubtedly other factors besides advisement deficiencies which contribute to the alarming dropout rate, concerted effort by faculty and administrators in higher education to evaluate and upgrade all aspects of advisement should help reduce student attrition.

The purpose of this chapter is to present and analyze college advisement data obtained from the survey instrument. The following advisement factors evaluated by respondents are discussed: The advisor's availability for counsel; his knowledge of major and degree requirements; his willingness and ability to work with students; his interest in non-major

problems of the student; the adequacy of vocational information provided by the advisor; and, respondents' perceptions of the overall quality of advisement.

Advisors' Academic Department

In question 13 of the survey instrument, respondents were asked:

> If you had an advisor, was he a member of the geography department faculty? a. ___ yes
> b. ___ no

The objective of the question was to generate information which would allow respondents' evaluation of advisement factors to be applied justifiably to geography faculty.

Tabulated results of responses to the question indicate that a majority of advisors were members of the geography department. However, statistically significant variations were discovered when responses were analyzed by institution (Table XXVIII). Only graduates of the former state colleges indicated that advisors were members of other academic departments. It is likely that interdepartmental advisement was characteristic of institutions which were organized historically along divisional rather than departmental lines. Even after reorganization abolished divisions and established separate departments, it seems plausible that traditional educational philosophy continued to influence the distribution of advisement duties among faculty.

TABLE XXVIII

RESPONDENTS WHOSE ADVISORS WERE MEMBERS OF THE GEOGRAPHY DEPARTMENT FACULTY

Response	Institution										Total Responses	Per cent
	CS	Per cent	ECS	Per cent	NES	Per cent	OSU	Per cent	OU	Per cent		
Yes	12	57.1	17	81.0	15	88.2	25	100.0	20	100.0	89	85.6
No	9	42.9	4	19.0	2	11.8	0	0.0	0	0.0	15	14.4
Total	21	100.0	21	100.0	17	100.0	25	100.0	20	100.0	104	100.0

χ^2 = 21.80 (P = .0002) Degrees of Freedom = 4

Limit = 9.49 Confidence Level = 95%

V = .46

Ratings of Advisement Factors

Perhaps the best judges of advisement quality are students who have experienced directly the various aspects of advisement. Their perceptions should provide excellent criteria for evaluation and possible restructuring of advisement programs at the cooperating institutions. Therefore respondents were asked in question 14 to:

> Please rate the following advisement factors by placing an "x" in the column most descriptive of your advisement.

	Superior	Satisfactory	Inferior
a. Availability of advisor for counsel.			
b. Advisor's knowledge of major and degree requirements.			
c. Advisor's willingness and ability to work with students.			
d. Advisor's interest in your program.			
e. Advisor's interest in and understanding of your non-major problems.			
f. Vocational information provided by your advisor.			
g. Your overall rating of advisement.			

Availability of Advisor for Counsel

No statistically significant variations were discerned when responses of graduates were analyzed by institution and

by year of graduation (Table XXIX). A majority of graduates rated this factor of advisement as average or superior. This would suggest that most geography department advisors at the cooperating institutions spend enough time in their offices to facilitate contact with students outside the classroom. It is interesting to note that inferior ratings of this factor were more frequent among graduates of ECS and CS, the schools in which a larger proportion of advisors were outside the geography department.

Advisor's Knowledge of Major and Degree Requirements

Responses indicate that graduates perceived their advisors to be familiar with major and degree requirements. A majority from NES and OU rated their advisors as superior in regard to this factor. However, variations in ratings either by institution or by year of graduation were not sufficient to be statistically significant (Table XXX).

Advisor's Willingness and Ability to Work With Students

Most respondents felt that their advisor's willingness and ability to work with students was satisfactory or superior (Table XXXI). Although differences in ratings were observed when responses were examined by institution and year of graduation, these were statistically insignificant. Nevertheless, a larger number of graduates from OSU rated

TABLE XXIX

RESPONDENTS' OPINIONS REGARDING AVAILABILITY OF ADVISOR FOR COUNSEL

Category of Responses	Superior	Per cent	Satisfactory	Per cent	Inferior	Per cent	Total Responses	Per cent
By Institution:								
CS	7	36.8	9	47.4	3	15.8	19	100.0
ECS	5	27.8	8	44.4	5	27.8	18	100.0
NES	8	47.1	9	52.9	0	0.0	17	100.0
OSU	8	36.4	13	59.1	1	4.5	22	100.0
OU	7	35.0	12	60.0	1	5.0	20	100.0
Total	35	36.5	51	53.1	10	10.4	96	100.0
χ^2 = 10.40 (P = .24) Limit = 15.51 V = .23 df = 8 Level = 95%								
By Year of Graduation:								
1967	7	36.8	12	63.2	0	0.0	19	100.0
1968	2	25.0	6	75.0	0	0.0	8	100.0
1969	4	50.0	3	37.5	1	12.5	8	100.0
1970	8	32.0	12	48.0	5	20.0	25	100.0
1971	8	66.7	3	25.0	1	8.3	12	100.0
1972	6	25.0	15	62.5	3	12.5	24	100.0
Total	35	36.5	51	53.1	10	10.4	96	100.0
χ^2 = 13.65 (P = .19) Limit = 18.31 V = .27 df = 10 Level = 95%								

TABLE XXX

RESPONDENTS' OPINIONS REGARDING ADVISORS' KNOWLEDGE OF MAJOR AND DEGREE REQUIREMENTS

Category of Responses	Superior	Per cent	Satisfactory	Per cent	Inferior	Per cent	Total Responses	Per cent
By Institution:								
CS	8	42.1	10	52.6	2	5.3	19	100.0
ECS	8	44.4	10	55.6	0	0.0	18	100.0
NES	10	58.8	6	35.3	1	5.9	17	100.0
OSU	7	31.8	13	59.1	2	9.1	22	100.0
OU	13	65.0	7	35.0	0	0.0	20	100.0
Total	46	47.9	46	47.9	4	4.2	96	100.0
χ^2 = 8.19 (P = .41) Limit = 15.51 V = .21 df = 8 Level = 95%								
By Year of Graduation:								
1967	8	42.1	10	52.6	1	5.3	19	100.0
1968	4	50.0	4	50.0	0	0.0	8	100.0
1969	2	25.0	5	62.5	1	12.5	8	100.0
1970	13	52.0	12	48.0	0	0.0	25	100.0
1971	7	58.3	3	25.0	2	16.7	12	100.0
1972	12	50.0	12	50.0	0	0.0	24	100.0
Total	46	47.9	46	47.9	4	4.2	96	100.0
χ^2 = 11.45 (P = .32) Limit = 18.31 V = .24 df = 10 Level = 95%								

TABLE XXXI

RESPONDENTS' OPINIONS REGARDING ADVISORS' WILLINGNESS AND ABILITY TO WORK WITH STUDENTS

Category of Responses	Superior	Per cent	Satisfactory	Per cent	Inferior	Per cent	Total Responses	Per cent
By Institution:								
CS	7	36.8	11	57.9	1	5.3	19	100.0
ECS	6	33.3	10	55.6	2	11.1	18	100.0
NES	8	47.1	7	41.2	2	11.8	17	100.0
OSU	8	36.4	9	40.9	5	22.7	22	100.0
OU	9	45.0	10	50.0	1	5.0	20	100.0
Total	38	39.6	47	49.0	11	11.5	96	100.0
$\chi^2 = 5.44$ (P = .71) Limit = 15.51 V = .17 df = 8 Level = 95%								
By Year of Graduation:								
1967	8	42.1	9	47.4	2	10.5	19	100.0
1968	2	25.0	6	75.0	0	0.0	8	100.0
1969	2	25.0	3	37.5	3	37.5	8	100.0
1970	10	40.0	13	52.0	2	8.0	25	100.0
1971	6	50.0	5	41.7	1	8.3	12	100.0
1972	10	41.7	11	45.8	3	12.5	24	100.0
Total	38	39.6	47	49.0	11	11.5	96	100.0
$\chi^2 = 8.86$ (P = .54) Limit = 18.31 V = .21 df = 10 Level = 95%								

their advisors as inferior in this area. This would appear to reflect the opinions of several graduates of that institution who felt that graduate students received more faculty time and attention than undergraduates (Table XXVII).

Advisor's Interest in Respondent's Major Program

A scrutiny of responses by institution and by year of graduation reveals some interesting though statistically insignificant variations. Only graduates of NES rated their advisor's interest in their major program as superior (Table XXXII). One possible explanation for this might be that the smaller number of undergraduate majors and lack of graduate students in geography at NES facilitated the development of a closer working relationship between the respondents and their advisors. Graduates of OU and OSU were the only ones who provided more inferior than superior ratings. Again, this would seem to reflect a greater preoccupation with graduate students at those institutions.

A grouping of responses from graduates of the 1960's and the 1970's shows that a much larger number of negative responses (18) were associated with graduates of the 1970's than with graduates of the 1960's (8). While several factors might have contributed to this variation, it seems plausible that the enlargement of graduate enrollments at OSU and OU and the increase in undergraduate geography majors at all institutions in the 1970's, which may have

TABLE XXXII

RESPONDENTS' OPINIONS REGARDING ADVISORS' INTEREST IN THEIR MAJOR PROGRAM

Category of Responses	Superior	Per cent	Satisfactory	Per cent	Inferior	Per cent	Total Responses	Per cent
By Institution:								
CS	7	36.8	7	36.8	5	26.3	19	100.0
ECS	7	38.9	5	27.8	6	33.3	18	100.0
NES	9	52.9	6	35.3	2	11.8	17	100.0
OSU	5	22.7	11	50.0	6	27.3	22	100.0
OU	6	30.0	7	35.0	7	35.0	20	100.0
Total	34	35.4	36	37.5	26	27.1	96	100.0
$\chi^2 = 6.34$ (P = .61) Limit = 15.51 V = .18 df = 8 Level = 95%								
By Year of Graduation:								
1967	6	31.6	9	47.4	4	21.1	19	100.0
1968	2	25.0	6	75.0	0	00.0	8	100.0
1969	2	25.0	2	25.0	4	50.0	8	100.0
1970	8	32.0	10	40.0	7	28.0	25	100.0
1971	8	66.6	2	16.7	2	16.7	12	100.0
1972	8	33.3	7	29.2	9	37.5	24	100.0
Total	34	35.4	36	37.5	26	27.1	96	100.0
$\chi^2 = 15.11$ (P = .13) Limit = 18.31 V = .28 df = 10 Level = 95%								

reduced faculty time available for individual undergraduates, could account for much of the difference observed.

Advisors' Interest in the Non-Major Problems of Respondents

While many more graduates rated this factor inferior than superior, no statistically significant variations were detected (Table XXXIII). Numerically, a greater number of respondents from OU and OSU rated this factor inferior than did respondents from all the former state colleges combined. This might indicate that a more impersonal atmosphere existed at those larger institutions. Since a higher percentage of graduates from NES than from other schools felt that advisors' interest in their non-major problems was superior, it appears that the personal interest of that faculty in the overall welfare of undergraduate majors merits commendation.

Vocational Information Provided for Respondents by Advisors

This is the area of advisement in which respondents perceived the greatest deficiency. A large majority (64.2%) of graduates felt that their advisors' provision of vocational information was inferior. By no means, however, were responses uniform, particularly if they are examined by year of graduation. Statistically significant variations were identified by comparing responses in 1967, 1969, 1970, and

TABLE XXXIII

RESPONDENTS' OPINIONS REGARDING THE ADVISORS' INTEREST IN THEIR NON-MAJOR PROBLEMS

Category of Responses	Superior	Per cent	Satisfactory	Per cent	Inferior	Per cent	Total Responses	Per cent
By Institution:								
CS	2	10.5	11	57.9	6	31.6	19	100.0
ECS	1	5.6	9	50.0	8	44.4	18	100.0
NES	6	35.3	7	41.2	4	23.5	17	100.0
OSU	2	9.1	11	50.0	9	40.9	22	100.0
OU	3	15.0	7	35.0	10	50.0	20	100.0
Total	14	14.6	45	46.9	37	38.5	96	100.0
χ^2 = 10.08 (P = .26) Limit = 15.51 V = .23 df = 8 Level = 95%								
By Year of Graduation:								
1967	2	10.5	8	42.1	9	47.4	19	100.0
1968	0	00.0	6	75.0	2	25.0	8	100.0
1969	1	12.5	2	25.0	5	62.5	8	100.0
1970	2	8.0	13	52.0	10	40.0	25	100.0
1971	4	33.3	5	41.7	3	25.0	12	100.0
1972	5	20.9	11	45.8	8	33.3	24	100.0
Total	14	14.6	45	46.9	37	38.5	96	100.0
χ^2 = 10.87 (P = .37) Limit = 18.31 V = .24 df = 10 Level = 95%								

1972 with those from 1968 and 1971 (Table XXXIV). Reasons for these observed differences are impossible to delineate with any degree of certainty.

Earlier observations by graduates who cited failure to provide career information as the most serious criticism of their undergraduate major program (Table XXVII) are substantiated by the large number of negative responses to this item. It is possible that the failure to provide adequate career information stemmed from advisors' lack of awareness of potential opportunities for jobs in geography. It is also possible that few vocations exist for graduates with the limited specialization of a baccalaureate degree in geography. If that is the case, advisors would seem to have an obligation to encourage students interested in geographically oriented employment to continue their education for the purpose of enhancing professional preparation. Regardless, it appears that geographers at the involved institutions should familiarize themselves with vocational literature so that they might better be able to inform future students of employment possibilities available to them.

Overall Quality of Advisement

Respondents' opinions regarding the overall quality of their college advisement undoubtedly reflect variations in their ratings of the previously discussed advisement factors. While no statistically significant differences were detected

TABLE XXXIV

RESPONDENTS' OPINIONS REGARDING VOCATIONAL INFORMATION PROVIDED BY THE ADVISOR

Category of Responses	Superior	Per cent	Satisfactory	Per cent	Inferior	Per cent	Total Responses	Per cent
By Institution:								
CS	2	11.1	3	16.7	13	72.2	18	100.0
ECS	0	00.0	6	33.3	12	66.7	18	100.0
NES	3	17.6	7	41.2	7	41.2	17	100.0
OSU	1	4.5	7	31.8	14	63.6	22	100.0
OU	2	10.0	3	15.0	15	75.0	20	100.0
Total	8	8.4	26	27.4	61	64.2	95	100.0
χ^2 = 9.25 (P = .32) Limit = 15.51 V = .22 df = 8 Level = 95%								
By Year of Graduation:								
1967	2	10.5	5	26.3	12	63.2	19	100.0
1968	0	00.0	5	62.5	3	37.5	8	100.0
1969	1	12.5	1	12.5	6	75.0	8	100.0
1970	1	4.0	6	24.0	18	72.0	25	100.0
1971	4	33.3	2	16.7	6	50.0	12	100.0
1972	0	00.0	7	30.4	16	69.6	23	100.0
Total	8	8.4	26	27.4	61	64.2	95	100.0
χ^2 = 18.99 (P = .04) Limit = 18.31 V = .32 df = 10 Level = 95%								

when responses were examined by institution or by year of graduation, it is interesting to note in Table XXXV that more graduates from OSU and OU perceived their advisement as inferior than did graduates of the former state colleges. The larger size of the former institutions may have created a climate in which contacts between students and advisors were impaired. Likewise, there were a larger number of inferior ratings of overall advisement quality by graduates of the 1970's than by those of the 1960's. However, 1969 graduates had a higher percentage of inferior ratings than graduates of any other year. These variations might be accounted for by the increases in numbers of undergraduate majors in geography which may have reduced the amount of faculty time spent with individual students.

On the positive side, the percentage of satisfactory and superior responses combined was much higher than the percentage of inferior responses for all institutions and years. Especially notable were the respondents from NES and those for 1971 more than 80 per cent of whom provided a satisfactory or superior rating for the overall quality of their undergraduate advisement.

Summary

A well-conceived, effectively implemented program of student advisement is a fundamental element of any successful major program in higher education. One purpose of this research is to evaluate the quality of undergraduate

TABLE XXXV

RESPONDENTS' OPINIONS REGARDING OVERALL QUALITY OF ADVISEMENT

Category of Responses	Superior	Per cent	Satisfactory	Per cent	Inferior	Per cent	Total Responses	Per cent
By Institution:								
CS	5	26.3	10	52.6	4	21.1	19	100.0
ECS	3	16.7	10	55.6	5	27.8	18	100.0
NES	7	41.2	7	41.2	3	17.6	17	100.0
OSU	5	22.7	9	40.9	8	36.4	22	100.0
OU	5	25.0	9	45.0	6	30.0	20	100.0
Total	25	26.0	45	46.9	26	27.1	96	100.0
$\chi^2 = 4.51$ (P = .81) Limit = 15.51 V = .15 df = 8 Level = 95%								
By Year of Graduation:								
1967	6	31.6	9	47.4	4	21.1	19	100.0
1968	1	12.5	7	87.5	0	00.0	8	100.0
1969	2	25.0	2	25.0	4	50.0	8	100.0
1970	4	16.0	13	52.0	8	32.0	25	100.0
1971	6	50.0	4	33.3	2	16.7	12	100.0
1972	6	25.0	10	41.7	8	33.3	24	100.0
Total	25	26.0	45	46.9	26	27.1	96	100.0
$\chi^2 = 13.82$ (P = .18) Limit = 18.31 V = .27 df = 10 Level = 95%								

geography advisement at selected institutions in Oklahoma by soliciting opinions of graduated majors who are in a position to assess its effectiveness retrospectively in light of their post-graduate experiences. Since a large majority of respondents indicated that their advisors were members of the geography faculty, it is justifiable to employ their criticisms in the evaluation of advisement at the departments cooperating in this study.

Commendably, a majority of the graduates surveyed believed their overall advisement to have been satisfactory or superior. However, there were considerable variations in the respondents' ratings of the six advisement factors selected for assessment. The factor receiving the highest rating was "the advisors' knowledge of curriculum and degree requirements." The one which was rated lowest was "vocational information provided by the advisor."

When responses were examined by institution granting the baccalaureate degree, it was discovered that NES graduates perceived their advisement as satisfactory or superior more frequently than did graduates of other institutions. OSU and OU graduates expressed greater dissatisfaction with their advisement than did other respondents.

The only statistically significant variation in advisement ratings was discovered when responses concerning the provision of vocational information were analyzed by year of graduation.

FOOTNOTES

[1]Edwin E. Vineyard, 1964, quoted in R. B. Clark, "A Study of the Evaluation of Accounting Education and the Accounting Profession by Selected Graduates of Universities and Colleges in Kansas" (unpub. Ph.D. dissertation, Oklahoma State University, 1969), p. 119.

CHAPTER VI

GRADUATE STUDY

Introduction

One of the basic goals of undergraduate major programs in geography is to prepare students to seek a graduate degree in the discipline.[1] Those who are preparing to seek a graduate degree and a career as a professional geographer in college teaching, government services, or some other professional activity form the second largest group of undergraduate majors.[2]

The purpose of this chapter is to evaluate the following elements of graduate study as reported by respondents who have pursued coursework beyond the baccalaureate degree: the number of credit hours completed beyond the bachelors degree; the number of graduate credit hours directed toward the completion of an advanced degree; graduate degrees earned; advice or assistance in selection of a school for graduate study provided by geography faculty; the three most beneficial and three least beneficial undergraduate geography courses in terms of preparation for graduate study; the sufficiency of the undergraduate major program for graduate study preparation; and, the areas of undergraduate training which were deficient in terms of graduate study preparation.

Responses to the foregoing items are presented in terms of the institution granting the baccalaureate degree and the year in which the bachelors degree was conferred. Hopefully, information generated by responses to this section of the questionnaire will provide additional criteria whereby undergraduate major programs at institutions cooperating in the research may be evaluated.

Respondents Completing Coursework Beyond the Bachelors Degree

In question 15 of the survey instrument, respondents were asked:

Have you completed any college coursework beyond the bachelors degree? a. ___ yes b. ___ no

A summary of the responses to the question is presented in Table XXXVI. A majority of the graduates replied that they had pursued graduate study. However, when responses are examined by institution and by year of graduation, some interesting variations are apparent.

In terms of the institutions granting the baccalaureate degrees, a much higher percentage of graduates from OSU and OU indicated completion of advanced coursework than did graduates of CS, ECS, and NES. While several factors might account for this difference, it seems likely that the availability of graduate programs at the two universities, and the greater teacher preparation and sub-professional orientation of the geography programs at the three former

TABLE XXXVI

RESPONDENTS COMPLETING COURSEWORK BEYOND THE BACCALAUREATE DEGREE

Category of Responses	Yes	Per cent	No	Per cent	Total Responses	Per cent
By Institution:						
CS	11	52.4	10	47.6	21	100.0
ECS	7	33.3	14	66.7	21	100.0
NES	8	47.1	9	52.9	17	100.0
OSU	18	72.0	7	28.0	25	100.0
OU	13	65.0	7	35.0	20	100.0
Total	57	54.8	47	45.2	104	100.0
$\chi^2 = 8.19$ (P = .08) Limit = 9.49 V = .28 df = 4 Level = 95%						
By Year of Graduation:						
1967	12	63.2	7	36.8	19	100.0
1968	7	77.8	2	22.2	9	100.0
1969	7	70.0	3	30.0	10	100.0
1970	16	59.3	11	40.7	27	100.0
1971	6	42.9	8	57.1	14	100.0
1972	9	36.0	16	64.0	25	100.0
Total	57	54.8	47	45.2	104	100.0
$\chi^2 = 7.97$ (P = .17) Limit = 11.07 V = .27 df = 5 Level = 95%						

state colleges would explain much of the variation observed.

A larger majority of graduates of the 1960's continued their education beyond the bachelors degree than did graduates of the 1970's. One plausible explanation for this might be the relatively larger number of teaching jobs in higher education in the 1960's and the advanced coursework required for procurement of those jobs.

When responses were correlated with other factors such as sex, the number of undergraduate credit hours earned, overall undergraduate grade average, and undergraduate advisement qualities, no significant associations were discovered. However, a comparison of respondents' opinions regarding the desirability of additional emphasis on undergraduate courses outside of geography with responses to this question relating to graduate study yielded an interesting discrepancy (Table XXXVII). A considerably higher percentage of those respondents who pursued graduate study felt that more emphasis should have been placed on undergraduate courses outside of geography than did those who failed to continue their education beyond the bachlors degree. This finding would tend to substantiate the following observations of the authors of Undergraduate Major Programs in American Geography:

> It is generally agreed that there should be an upper limit on the number of courses in geography that a student may elect. Undergraduate courses tend to be redundant after a number have been taken, and thus they are easier to handle than courses in other areas. Too many will cut into the students' general education program and reduce the probability that he will obtain an adequate background in

TABLE XXXVII

THE RELATIONSHIP BETWEEN RESPONDENTS' OPINIONS REGARDING THE DESIRABILITY OF ADDITIONAL EMPHASIS ON UNDERGRADUATE COURSES OUTSIDE OF GEOGRAPHY AND THE NUMBER OF RESPONDENTS PURSUING GRADUATE STUDY

Have you pursued graduate study:	Should additional emphasis be placed on undergraduate courses outside of geography? Yes	Per cent	No	Per cent	Total Responses	Per cent
Yes	22	38.6	35	61.4	57	100.0
No	9	19.1	38	80.9	47	100.0
Total	31	29.8	73	70.2	104	100.0

Corrected χ^2 = 3.77 (P = .054) Limit = 3.84 Phi = .19 df = 1

Level = 95%

> supporting fields. Because conflicting opinions exist on the subject, it would be useful to have an objective study to determine whether a heavy concentration in the major field is a help or a hindrance to the student who goes on to graduate work in geography.[3]

Credit Hours Completed Beyond the Bachelors Degree

Question 16 of the questionnaire asked the respondent: How many credit hours have you completed beyond the bachelors degree? a. __ semester hours b. __ quarter hours

An examination of responses to the question presented in Table XXXVIII reveals that more than one-half of those who attended graduate school completed just 1-29 credit hours suggesting that the pursuit of an advanced degree by those respondents had been interrupted by financial or other considerations.

A categorization of responses by institution and by year the baccalaureate degree was conferred shows that a higher percentage of graduates of the three former state colleges and graduates of the 1960's completed 30 or more graduate credit hours than did graduates of the two universities and graduates of the 1970's. While the greater amount of time available for advanced study for 1960's graduates would help to explain the observed differences in that category, it is difficult to determine definitively percentage differences in responses of graduates by type of institution. Possibly, graduates of the former state colleges, a

TABLE XXXVIII

CREDIT HOURS BEYOND THE BACCALAUREATE DEGREE EARNED BY RESPONDENTS

Category of Responses	1-29		30-59		60-89		90 or more		Total Responses	Per cent
By Institution:										
CS	5	45.4	6	54.6	0	0.0	0	0.0	11	100.0
ECS	4	57.1	3	42.9	0	0.0	0	0.0	7	100.0
NES	4	50.0	2	25.0	2	25.0	0	0.0	8	100.0
OSU	9	50.0	6	33.3	3	16.7	0	0.0	18	100.0
OU	8	61.5	4	30.8	0	0.0	1	7.7	13	100.0
Total	30	52.6	21	36.8	5	8.8	1	1.8	57	100.0
By Year of Graduation:										
1967	5	41.7	6	50.0	0	0.0	1	8.3	12	100.0
1968	3	42.9	1	14.2	3	42.9	0	0.0	7	100.0
1969	3	42.9	3	42.9	1	14.2	0	0.0	7	100.0
1970	11	68.8	4	25.0	1	6.2	0	0.0	16	100.0
1971	3	50.0	3	50.0	0	0.0	0	0.0	6	100.0
1972	5	55.6	4	44.4	0	0.0	0	0.0	9	100.0
Total	30	52.6	21	36.8	5	8.8	1	1.8	57	100.0

larger percentage of whom are elementary or secondary teachers, were encouraged by employers to pursue graduate study during each summer break period.

Closely related to this question was question 17 in which respondents were asked to indicate the number of their credit hours which were directed toward the completion of an advanced degree. All but nine indicated that their graduate work was so directed. Those nine exceptions were well-distributed among graduates of all institutions and years included in the survey.

Graduate Degrees Earned by Respondents

A survey of graduate degrees earned by respondents reveals that only 21 of the 57 graduates who reported credits beyond the bachelors degree had completed requirements for an advanced degree at the time of this survey. A breakdown of graduate degrees earned by institution granting the bachelors degree is presented in Table XXXIX.

As might be expected from the larger number of graduates who reported advanced coursework, more OSU respondents received graduate degrees than did those from other institutions. OU graduates, however, received fewer advanced degrees than respondents of other schools. This is somewhat surprising since only OSU had more respondents reporting graduate study. This discrepancy may be explained in part by the number of that school's graduates (3) who indicated

that they were in the process of completing requirements for the doctorate, having bypassed the masters in favor of the higher degree.

TABLE XXXIX

GRADUATE DEGREES EARNED
BY RESPONDENTS

Institution	Respondents	Type and Number of Degrees Earned
CS	4	M.E. (3), M.A. (1)
ECS	3	M.A. (2), M.R.C.P. (1)
NES	4	M.E. (1), M.A. (2), Diploma in Geography (1)
OSU	7	M.S. (6), M.R.C.P. (1)
OU	3	M.S. (1), M.R.C.P. (1), Ph.D. (1)
	21	

The type of advanced degrees received by respondents varied considerably by institution. The most frequently mentioned were the Master of Science (7), the Master of Arts (5), the Master of Education (5), and the Master of Regional and City Planning (3). The graduate degrees of all but two respondents were in geography or closely related fields. One ECS graduate reported an M.A. in Psychology and one respondent from OSU cited an M.S. in Personnel and Guidance.

Just five respondents received advanced degrees from

institutions in areas outside of Oklahoma. One of those reported a Diploma in Geography from the University of Edinburgh in Scotland.

Advice or Assistance in Selection of a School for Graduate Study Provided by the Geography Department

One important responsibility of undergraduate departments is to provide information for majors regarding opportunities for graduate study. The success with which a department imparts this information is perhaps best indicated by perceptions of graduates who have had an opportunity to receive it. Thus, respondents were asked the following question:

> Did the chairman or any other member of your department advise or assist you in the selection of a school for graduate study? a. ___ yes b. ___ no

Of the 54 respondents who replied to this question, a majority indicated that the advice or assistance in selection of a school for graduate study provided by their major department was inadequate (Table XL). The largest percentages of favorable responses to the question were provided by graduates of ECS and NES, possibly because the smaller size of those institutions and the absence of geography graduate programs therein facilitated greater personal contact between undergraduate majors and faculty members. The highest percentage of negative responses came from CS, many of whose

TABLE XL

RESPONDENTS' OPINIONS REGARDING WHETHER OR NOT ADVICE OR ASSISTANCE IN SELECTION OF A SCHOOL FOR GRADUATE STUDY WAS PROVIDED BY GEOGRAPHY FACULTY

Category of Responses	Yes	Per cent	No	Per cent	Total Responses	Per cent
By Institution:						
CS	1	10.0	9	90.0	10	100.0
ECS	4	57.1	3	42.9	7	100.0
NES	4	50.0	4	50.0	8	100.0
OSU	7	38.9	11	61.1	18	100.0
OU	3	27.3	8	72.7	11	100.0
Total	19	35.2	35	64.8	54	100.0
χ^2 = 5.44 (P = .24) Limit = 9.49 V = .32 df = 4 Level = 95%						
By Year of Graduation:						
1967	2	20.0	8	80.0	10	100.0
1968	3	42.9	4	57.1	7	100.0
1969	2	28.6	5	71.4	7	100.0
1970	5	31.3	11	68.8	16	100.0
1971	2	33.3	4	66.7	6	100.0
1972	5	62.5	3	37.5	8	100.0
Total	19	35.2	35	64.8	54	100.0
χ^2 = 4.06 (P = .54) Limit = 11.07 V = .27 df = 5 Level = 95%						

graduates indicated that their advisors were members of departments other than geography.

A comparison of responses by year of graduation reveals that 1972 was the only year in which a majority of respondents felt that departmental advice or assistance in selection of a school for graduate study was adequate. Hopefully, this is indicative of a trend toward improvement of departmental competency in this area.

The Three Most Beneficial Undergraduate Geography Courses for Graduate Study Preparation

Because undergraduate geography courses should provide students with a foundation upon which a successful graduate program can be structured, it seemed desirable to elicit from students who have experienced graduate study their opinions regarding the undergraduate courses they deemed most valuable as preparatory for advanced coursework in the discipline. Therefore, question 20 asked respondents:

> Of all the geography courses taken in your major program, which would you consider to be the three most beneficial in terms of your preparation for graduate study? (List course and reason for high rating)

The courses most frequently mentioned by respondents as most beneficial are presented in Table XLI. It is notable that introductory courses which tend to emphasize

TABLE XLI

THE THREE MOST BENEFICIAL COURSES IN TERMS OF UTILITY FOR GRADUATE STUDY

Course	Institution					Total Responses
	CS	ECS	NES	OSU	OU	
Intro. Physical Geography	4	0	1	6	4	15
Principles of Economic Geography	0	0	0	6	3	9
Intro. Urban Geography	1	0	0	6	1	8
Intro. Cartography	0	4	0	2	2	8
Intro. Social or Cultural Geography	1	0	1	2	1	5
Conservation of Natural Resources	1	3	0	1	0	5
World Regional Geography	1	0	3	0	1	5
Regional Geography of Anglo-America	2	0	2	0	0	4
Climatology	1	0	0	2	1	4
Research Methods in Geography	0	0	0	0	3	3
Political Geography	2	0	0	0	1	3
Others	6	5	5	4	3	23
Total	19	12	12	29	20	92

basic geographic concepts were listed by the majority of respondents. Exceptions to this were Cartography and Research Methods both of which are designed to develop a basic skill or ability valuable for advanced coursework or geographic employment. Institutional variations in responses seem to reflect either the differing strength of faculty competencies or the curricular emphasis of the involved departments.

Reasons offered by graduates for rating certain courses more highly than others were the quality of instruction and the essential nature of the courses' content. This seems to support the contention of some professional geographers that among the most important factors contributing to a successful undergraduate major program in geography are content and instruction of the highest quality in introductory courses.[4]

The Three Least Beneficial Undergraduate Geography Courses for Graduate Study Preparation

Closely related to the previous question was question 21 in which respondents' perceptions of the three least beneficial undergraduate courses for graduate study were solicited.

As shown in Table XLII, Principles of Economic Geography, courses in regional geography, Political Geography and Introduction to Physical Geography were most frequently

TABLE XLII

THE THREE LEAST BENEFICIAL COURSES IN TERMS OF UTILITY FOR GRADUATE STUDY

Course	Institution					Total Responses
	CS	ECS	NES	OSU	OU	
Principles of Economic Geography	0	0	0	6	2	8
World Regional Geography	2	3	1	0	1	7
Regional Geography of Latin-America	1	0	1	3	0	5
Regional Geography of Europe	1	0	0	4	0	5
Regional Geography of Asia	0	1	1	3	0	5
Regional Geography of Sub-Saharan Africa	1	1	1	1	1	5
Regional Geography of Anglo-America	0	0	0	4	0	4
Political Geography	0	0	0	2	2	4
Intro. Physical Geography	0	0	0	3	0	3
Others	5	3	4	4	6	22
Total	10	8	8	30	13	68

mentioned as being of little benefit in terms of preparation for graduate work. A categorization of responses by institution reveals that OSU graduates were the most critical of regional geography courses which they cited as being excessively repetitive and characterized by poor quality instruction. Economic geography and Political geography were criticized by OSU and OU graduates as being too theoretical and poorly taught. The three OSU graduates who included Introduction to Physical Geography as one of the three least beneficial courses stated that it either was plagued by inferior instruction or dominated by boring, redundant subject matter. Responses labeled as "others" were too varied to be included for analysis.

The Sufficiency of Respondents' Undergraduate Geography Training as a Background for Graduate Study

In question 22 of the questionnaire, respondents were asked:

> In your opinion did your undergraduate training in geography provide you with sufficient background to pursue graduate study successfully? a. ___ yes
>
> b. ___ no
>
> If your answer is no, in what areas did you feel the greatest deficiencies existed?

Table XLIII presents the responses of graduates to this

TABLE XLIII

RESPONDENTS' OPINIONS REGARDING WHETHER UNDERGRADUATE TRAINING IN GEOGRAPHY PROVIDED THEM WITH SUFFICIENT BACKGROUND TO PURSUE GRADUATE STUDY

Category of Responses	Yes	Per cent	No	Per cent	Total Responses	Per cent
By Institution:						
CS	10	90.9	1	9.1	11	100.0
ECS	6	75.0	2	25.0	8	100.0
NES	6	100.0	0	0.0	6	100.0
OSU	13	76.5	4	23.5	17	100.0
OU	11	84.6	2	15.4	13	100.0
Total	46	83.6	9	16.4	55	100.0
χ^2 = 2.68 (P = .60) Limit = 9.49 V = .22 df = 4 Level = 95%						
By Year of Graduation:						
1967	12	100.0	0	0.0	12	100.0
1968	5	83.3	1	16.7	6	100.0
1969	4	66.7	2	33.3	6	100.0
1970	13	81.3	3	18.8	16	100.0
1971	6	100.0	0	0.0	6	100.0
1972	6	66.7	3	33.3	9	100.0
Total	46	83.6	9	16.4	55	100.0
χ^2 = 6.74 (P = .24) Limit = 11.07 V = .35 df = 5 Level = 95%						

question by institution granting the baccalaureate degree and by year in which the degree was conferred. While a majority of all respondents felt that their undergraduate training had sufficiently prepared them for graduate study, only graduates of NES were unanimous in this opinion. The highest percentages of negative responses were provided by ECS and OSU. A survey of responses by year of graduation shows that all were positive for 1967 and 1971, while the highest percentages of negative responses were recorded for 1969 and 1972. Differences in responses by institution and by year of graduation, though not statistically significant, might be attributed to variations in academic standards among institutions where graduate study was pursued or to the divergence of fields selected by graduates for advanced study.

Those respondents who felt their undergraduate programs were inadequate in terms of graduate study preparation stated that the greatest weakness lay in the excessive number of required geography courses which prevented them from taking highly desirable courses in cognate fields such as mathematics/statistics/computer science, environmental science, and geology.

A statistically significant association was discovered when responses to this question were correlated with those pertaining to when the undergraduate major was decided (Table XLIV).

A large majority of graduates who elected to major in

TABLE XLIV

THE RELATIONSHIP BETWEEN RESPONDENTS' OPINIONS REGARDING THE SUFFICIENCY OF THEIR UNDERGRADUATE TRAINING AS A BACKGROUND FOR GRADUATE STUDY AND THE LEVEL AT WHICH THE UNDERGRADUATE MAJOR WAS DECIDED

Level at which undergraduate major was decided	Was undergraduate training sufficient preparation for graduate study? Yes	Per cent	No	Per cent	Total Responses	Per cent
Before enrolling in college	4	100.0	0	0.0	4	100.0
During freshman year	5	62.5	3	37.5	8	100.0
During sophomore year	30	90.9	3	9.1	33	100.0
During junior year	7	77.8	2	22.2	9	100.0
During senior year	0	0.0	1	100.0	1	100.0
Total	46	83.6	9	16.4	55	100.0

χ^2 = 10.06 P = .04 Limit = 9.49 V = .43 df = 4 Level = 95%

geography prior to their senior year felt their undergraduate training provided sufficient background for graduate study. The one respondent who delayed his choice of a major until the senior year indicated that it did not. This would suggest that most geography majors require more than one year of concentrated coursework in the discipline in order to achieve a rudimentary understanding of the methods and concepts essential to advanced study.

Summary

Of the 104 graduates who responded to the survey instrument, 57 indicated they had completed coursework beyond the baccalaureate degree. A higher percentage of respondents from OU and OSU than from the three former state colleges had attended graduate school.

A majority of respondents reported the completion of less than 30 hours of graduate coursework. Just 21 had received degrees beyond the bachelors and only one had completed requirements for a higher degree than the masters.

Nearly 65 percent of the respondents indicated that geography department faculty had not sufficiently advised or assisted them in the selection of a school for graduate study. The only year for which a majority of graduates responded positively was 1972.

The undergraduate geography courses which were perceived by respondents as most beneficial for graduate study were those emphasizing basic concepts, methods or skills of

geographic analysis. Deemed least beneficial were courses in which instruction was considered inadequate or those in which the content was inordinately repetitive.

A majority of graduates from all institutions and all years surveyed felt that their undergraduate training in geography provided them with sufficient background to pursue advanced coursework successfully. Those who disagreed indicated that excessive course requirements in geography precluded coursework in cognate fields which would have broadened their preparation for graduate study.

FOOTNOTES

[1] *Undergraduate Major Programs in Geography*, p. 8.

[2] Ibid.

[3] Ibid., p. 6.

[4] Ibid., p. 9.

CHAPTER VII

EMPLOYMENT HISTORY

Introduction

The two primary purposes of this chapter are: (1) to assist cooperating geography departments in constructing a profile of former graduates by providing descriptive data relating to their occupational status; and (2) to analyze relationships which exist between employment factors and respondents' stated opinions regarding the adequacy of various phases of their undergraduate major programs.

Items 23-31 of the questionnaire were designed to obtain information relating to: the number of interviews required before respondents obtained their first job; the date and location of initial employment; beginning salaries and salary increases received by respondents; the importance of geography or geographic analysis as a skill in the present job; factors which caused respondents to accept jobs outside the area of their undergraduate specialization; opinions of respondents employed in geography regarding prospects for advancement in rank and salary; the number of jobs held by respondents since the baccalaureate degree was completed; and, fields of employment and specific jobs held by geography graduates.

Graduates' responses to these items are presented by institution granting the baccalaureate degree and by calendar year in which the degree was conferred.

The Number of Interviews Before Initial Employment

It seems likely that respondents' expressed attitudes toward their undergraduate major programs were related to frustrations experienced in the process of obtaining satisfying employment after graduation. In an effort to discover sources of possible disillusionment, respondents were asked in question 23:

> How many prospective employers did you interview before accepting your first job after graduation?

Ninety-five graduates answered this question. A breakdown of their responses is shown in Table XLV. It is interesting to note that nearly 55 per cent of those responding were able to obtain employment with two interviews or less. More than 25 per cent required five or more interviews to secure their first jobs. When responses were correlated with other items in the questionnaire, a statistically significant association was discovered with graduates' opinions regarding employment assistance provided by geography faculty (Table XLVI). Results of this correlation indicate that graduates who received faculty assistance were able to obtain initial employment with relatively greater ease than those who did not. Other factors which may have

TABLE XLV

THE NUMBER OF INTERVIEWS REQUIRED BEFORE RESPONDENTS ACCEPTED THEIR FIRST JOBS AFTER GRADUATION

Category of Responses	Number of Interviews					Total Responses
	One	Two	Three	Four	Five +	
By Institution:						
CS	2	7	2	2	6	19
ECS	7	4	2	2	5	20
NES	7	3	2	0	3	15
OSU	10	5	2	1	5	23
OU	4	3	4	2	5	18
Total	30	22	12	7	24	95
By Year of Graduation:						
1967	5	2	5	0	4	16
1968	4	2	1	0	2	9
1969	4	3	2	0	1	10
1970	6	5	1	3	12	27
1971	2	4	1	2	2	11
1972	9	6	2	2	3	22
Total	30	22	12	7	24	95

TABLE XLVI

THE RELATIONSHIP BETWEEN RESPONDENTS' OPINIONS OF FACULTY ASSISTANCE IN SECURING EMPLOYMENT AND THE NUMBER OF INTERVIEWS REQUIRED BEFORE THE FIRST JOB WAS ACCEPTED

Number of Interviews Required for First Job	Was faculty assistance provided?				Total Responses	Per cent
	Yes	Per cent	No	Per cent		
One	7	23.3	23	76.7	30	100.0
Two	10	45.5	12	54.5	22	100.0
Three	2	16.7	10	83.3	12	100.0
Four	0	0.0	7	100.0	7	100.0
Five or more	1	4.2	23	95.8	24	100.0
Total	20	21.1	75	78.9	95	100.0

$\chi^2 = 34.70$ P = .0001 Limit = 9.49 V = .48 df = 4 Level = 95%

influenced institutional and yearly variations in the number of interviews required include fluctuations in the job market, changing attitudes of graduates regarding what constitutes desirable employment, and/or differences in the qualifications of the graduates seeking employment.

Date and Location of First Job

Questions 24 and 25 were designed to obtain information pertaining to the length of time required for graduates to obtain their first jobs and the location of these jobs. Respondents were asked:

24. What month and what year did you accept your first job after graduation?

25. In what city and what state was this first job located?

Of the 95 graduates responding to these questions, only six failed to secure initial employment within a year of college graduation. Each of those six cited the pursuit of additional formal education as the reason for their delayed entry into the job market.

Respondents reported the acceptance of jobs in 21 different states, with well over 50 per cent remaining in Oklahoma. Texas, Missouri, California, Florida, and New Jersey provided employment for an additional 22 per cent. In order to facilitate analysis of data, respondents were classified into two groups: those who remained in Oklahoma;

and those who obtained employment in other states. Results of this classification are presented in Table XLVII.

A comparison of responses by institution reveals that a much larger percentage of graduates from the former state colleges remained in Oklahoma for their first jobs than did university graduates. It seems plausible that the out-state origin of many of the university graduates and the more widely diffused university placement services could account for much of the observed difference.

While considerable variations were observed when responses were examined by year of graduation, it seems to be significant that graduates of the 1970's tended to remain in Oklahoma for employment while graduates of the 1960's migrated to other states in larger numbers. This would suggest that opportunities for employment in Oklahoma are expanding and that the state higher education system is increasing its production of qualified job applicants.

Beginning Salary and Salary Increases

Questions 26 and 27 of the survey instrument were designed to elicit information regarding beginning monthly salary increases. Respondents were asked:

26. What was your initial salary per month? $_____

27. What has been your approximate monthly salary on the employment anniversary (of the date

TABLE XLVII

LOCATION OF RESPONDENTS' INITIAL EMPLOYMENT AFTER GRADUATION

Category of Responses	Location of First Job: In Oklahoma No.	In Oklahoma Per cent	Outside Oklahoma No.	Outside Oklahoma Per cent	Total Responses	Per cent
By Institution:						
CS	13	68.4	6	31.6	19	100.0
ECS	14	70.0	6	30.0	20	100.0
NES	10	66.7	5	33.3	15	100.0
OSU	8	36.4	14	63.6	22	100.0
OU	9	47.4	10	52.6	19	100.0
Total	54	56.8	41	43.2	95	100.0
χ^2 = 7.47 P = .12 Limit = 9.49 V = .28 df = 4 Level = 95%						
By Year of Graduation:						
1967	7	43.8	9	56.2	16	100.0
1968	7	70.0	3	30.0	10	100.0
1969	1	14.3	6	85.7	7	100.0
1970	15	57.7	11	42.3	26	100.0
1971	5	41.7	7	58.3	12	100.0
1972	19	79.2	5	20.8	24	100.0
Total	54	56.8	41	43.2	95	100.0
χ^2 = 10.49 P = .06 Limit = 11.07 V = .33 df = 5 Level = 95%						

given in question 24) each year through 1973?

_____, _____, _____, _____, _____, _____.
1968 1969 1970 1971 1972 1973

In order to facilitate presentation, the data were converted to mean monthly salaries. Table XLVIII presents the average beginning monthly salaries of the 95 graduates responding to question 26. A comparison of the data by institution reveals that when weighted mean salaries were calculated for each group of respondents, graduates of the two universities received an average beginning salary of $632 per month while that of graduates of the three former state colleges was just $596. Thus, the university graduates were able to command a mean beginning salary $36 higher than that of the college graduates. This difference might be attributable to many factors among which the greater overall publicity received by the state universities and their more far-reaching alumni contacts and placement services would seem to be significant.

When salary data are examined by individual institutions, it is somewhat surprising that CS graduates had the highest average entry salary. An important reason for this was that five of their graduates held executive or managerial positions in business and reported unusually high monthly salaries for their first year of work. NES graduates had the lowest average beginning salary largely because 6 of the 14 respondents indicated employment as elementary or secondary teachers and two others stated they were clerical workers.

TABLE XLVIII

AVERAGE BEGINNING MONTHLY SALARY RECEIVED BY RESPONDENTS ACCEPTING FULL-TIME EMPLOYMENT

Category of Responses	Respondents	Average Beginning Monthly Salary
By Institution:		
CS	20	($646
ECS	21	$596 (585
NES	14	(543
OSU	23	632 (639
OU	17	(622
	95	$611
By Year of Graduation:		
1967	17	($563
1968	9	$560 (521
1969	8	(599
1970	25	(632
1971	13	638 (657
1972	23	(635
	95	$611

When data are compared by year of graduation, it is interesting to note that graduates of the 1970's had a higher average beginning monthly salary ($638) than graduates of the 1960's ($560). This $78 difference might be explained primarily by the higher entry salaries offered by employing firms during the last several years which reflect nationwide increases in living standards.

A scrutiny of data for individual years reveals that the average beginning salary of 1971 graduates was higher than that for any other year partially because 2 of the 13 respondents were self-employed and had very high incomes. The lowest average beginning salary was that of 1968 graduates. Five of the nine graduates responding for that year held jobs as either blue collar workers in industry or as elementary teachers.

Only six graduates failed to accept employment within a year of receiving their undergraduate degrees. Each of those six cited additional formal education as the cause for their delayed entry into the job market. It is worthwhile to note that the average beginning monthly salary of those respondents was $876. This was nearly $250 higher than the entry salary of those who accepted full-time employment without or before continuing their education.

Table XLIX presents the mean monthly salaries of graduates in 1973, the year prior to the completion of the survey. While the slightly smaller sample size for 1973 reduces the validity of comparisons somewhat, the difference in 1973

TABLE XLIX

MEAN MONTHLY SALARY EARNED IN 1973 BY GRADUATES IN FULL-TIME POSITIONS

Category of Responses	Respondents	Mean Monthly Salary in 1973
By Institution:		
CS	20	($988
ECS	21	$903(889
NES	13	(795
OSU	22	(907
OU	15	912(919
	91	$907
By Year of Graduation:		
1967	15	($898
1968	8	$945(1000
1969	7	(985
1970	25	(971
1971	13	888(824
1972	23	(834
	91	$907

between weighted mean salaries of college and university graduates ($9), was considerably less than the difference between the weighted mean beginning salaries of the two groups. This would suggest that, over time, differences in earning power between the college and university graduates became reduced significantly.

Eighty-five graduates supplied data regarding salary increases received from the time of initial employment through 1973. A summary of this data is presented in Table L. A comparison of total average monthly salary increases of graduates by year in which the baccalaureate degree was received indicates that total average increases of respondents from the 1960's were higher than those for graduates of the 1970's, primarily because of the greater length of time spent by the former as part of the working force.

An inspection of mean monthly salary increases from 1968-1973 reveals that they were higher for graduates of the 1970's than for those of the 1960's. The rapid rise in living standards and/or inflation in the 1970's could explain much of this difference. When responses are examined year by year, considerable variations in total monthly salary increases and mean monthly increases are discernible. However, it is difficult to interpret these differences accurately in that the smaller the yearly sample size, the greater the amount of distortion of salary averages or increases when unusually high or unusually low salary figures are reported by individual graduates.

TABLE L

MEAN MONTHLY SALARY INCREASES REPORTED BY GRADUATES OF ALL INSTITUTIONS, 1968-1973

Calendar Year of Baccalaureate Degree	Respondents	Mean Beginning Monthly Salary	Mean Monthly Salary 1973	Total Monthly Salary Increase	Mean Monthly Increase 1968-1973
1967	15	$564	$898	$334	$56
1968	8	561	1000	439	88
1969	7	639	985	346	86
1970	25	632	971	339	113
1971	12	669	851	182	91
1972	18	641	890	249	249
Total	85	617	932	315	113

Geography as a Skill in Respondents' Employment

The generation of information relating to the importance of geography as a skill in respondents' present employment was the purpose of question 28 in which graduates were asked:

> Do you consider some phase of geography or geographic analysis to be the major skill of your present postion? a. ___ yes b. ___ no

When responses are examined by institution (Table LI), it should be observed that NES is the only school from which a majority of graduates responded positively to the question. CS had the largest percentage responding negatively. A scrutiny of responses by year of graduation discloses that a majority of graduates from all years except 1968 and 1971 felt that geography or geographic analysis was not the major skill of their present employment.

Yearly and institutional variations in the number and proportion of positive and negative responses might be attributable to many factors. However, when respones to this question were correlated with responses to other items in the questionnaire, two statistically significant associations were discovered which might help to explain these variations. The first was between respondents' opinions of the importance of geography as a skill of their present employment and their ratings of their undergraduate advisors with respect to vocational information provided (Table LII).

TABLE LI

RESPONDENTS' OPINIONS REGARDING WHETHER GEOGRAPHY OR GEOGRAPHIC ANALYSIS IS THE MAJOR SKILL IN THEIR PRESENT JOB

Category of Responses	Yes	Per cent	No	Per cent	Total Responses	Per cent
By Institution:						
CS	3	15.0	17	85.0	20	100.0
ECS	5	23.8	16	76.2	21	100.0
NES	8	57.1	6	42.9	14	100.0
OSU	10	43.5	13	56.5	23	100.0
OU	5	27.8	13	72.2	18	100.0
Total	31	32.3	65	67.7	96	100.0
χ^2 = 8.86 P = .06 Limit = 9.49 V = .30 df = 4 Level = 95%						
By Year of Graduation:						
1967	5	27.8	13	72.2	18	100.0
1968	5	55.6	4	44.4	9	100.0
1969	2	25.0	6	75.0	8	100.0
1970	6	24.0	19	76.0	25	100.0
1971	7	53.8	6	46.2	13	100.0
1972	6	26.1	17	73.9	23	100.0
Total	31	32.3	65	67.7	96	100.0
χ^2 = 6.54 P = .26 Limit = 11.07 V = .26 df = 5 Level = 95%						

TABLE LII

THE RELATIONSHIP BETWEEN RESPONDENTS' OPINIONS OF WHETHER GEOGRAPHY OR GEOGRAPHIC ANALYSIS IS THE MAJOR SKILL IN THEIR PRESENT JOB AND THEIR RATINGS OF VOCATIONAL INFORMATION PROVIDED BY THEIR ADVISORS

Rating of Vocational Information Provided by the Advisor	Is geography or geographic analysis the major skill in your present job? Yes	Per cent	No	Per cent	Total Responses	Per cent
Superior	3	50.0	3	50.0	6	100.0
Satisfactory	14	56.0	11	44.0	25	100.0
Inferior	13	22.8	44	77.2	57	100.0
Total	30	34.1	58	58.8	88	100.0

$\chi^2 = 9.25$ P = .009 Limit = 5.99 V = .32 df = 2 Level = 95%

The second was between respondents' opinions regarding the importance of geography as an employment skill and the number of graduate hours they had completed (Table LIII). It is evident from examining the results of each of these correlations that: (1) Those who rated their advisors as satisfactory or superior with respect to the provision of vocational information were more likely to find employment in which geography or geographic analysis was a major skill than those who indicated inferior ratings; and (2) A higher percentage of graduates who completed 30 hours or more of graduate work were employed in jobs in which geography was the major skill than those who completed 29 graduate hours or less.

Reasons for Employment Outside of Geography

Closely related to the preceding question was question 29 in which respondents were asked:

> If in your present position you are not engaged in any geographic work, what do you feel is the major factor that caused you to accept employment outside the area of your undergraduate specialization?

Information generated by this question is presented in Table LIV. After examining the tabulated data closely, one might infer that: (1) Only a limited number of high paying jobs in geography are available to graduates without specialized training in the discipline; and (2) Available jobs are

TABLE LIII

THE RELATIONSHIP BETWEEN RESPONDENTS' OPINIONS REGARDING WHETHER GEOGRAPHY OR GEOGRAPHIC ANALYSIS IS THE MAJOR SKILL IN THEIR PRESENT JOB AND THE NUMBER OF GRADUATE HOURS COMPLETED

Graduate Credit Hours Completed	Is geography or geographic analysis the major skill in your present job? Yes	Per cent	No	Per cent	Total Responses	Per cent
0-29	15	20.5	58	79.5	73	100.0
30-59	11	61.1	7	38.9	18	100.0
60-89	4	100.0	0	0.0	4	100.0
90 or more	1	100.0	0	0.0	1	100.0
Total	31	32.3	65	67.7	96	100.0

χ^2 = 21.92 P = .0001 Limit = 7.82 V = .48 df = 3 Level = 95%

TABLE LIV

REASONS OFFERED BY RESPONDENTS FOR ACCEPTING EMPLOYMENT OUTSIDE OF GEOGRAPHY

Reason for Job Outside Geography	Institution					Total Responses
	CS	ECS	NES	OSU	OU	
Lack of job opportunities in geography	7	8	2	5	3	25
More money in another field	6	4	0	4	1	15
Underqualified	1	4	1	0	2	8
Insufficient career information provided by geography department	2	0	2	0	1	5
Lost interest in geography	1	0	1	1	1	4
Armed Services Assignment	0	0	0	1	2	3
No assistance from geography department in securing employment	0	0	0	0	2	2
Desire to travel	0	0	0	1	1	2
Graduate degree in another field	0	0	0	1	0	1
Total	17	16	6	13	13	65

usually taken by those who are well-informed about geographic career opportunities or by those who receive assistance in securing employment from professional geographers with widespread contacts.

Opportunity for Advancement

Respondents were asked in question 30 of the questionnaire:

> If you are employed in some phase of geography (teaching, research, planning, etc.) do you feel sufficient opportunity exists for advancement in rank and salary in your present position?
>
> a. ___ yes b. ___ no

Of the 31 graduates who indicated that geography was the major skill of their present employment, 29 answered the question regarding opportunity for professional advancement. Twenty-three of the 29 felt that sufficient opportunity existed for advancement in rank and salary. Of the six graduates who responded negatively, four were employed in education. When responses were classified by institution and by year of graduation, no statistically significant variations were determined.

Employment Characteristics

In an attempt to obtain information which would facilitate an assessment of graduates' mobility and a categorization of their employment fields and specific occupations,

respondents were asked to:

31. Please indicate your employment history with regard to dates of employment, employing individual or firm, and the position you held.

Respondent Mobility

Data relating to the numbers, dates and locations of jobs held were used as a basis for this discussion of respondent mobility. The large volume of information generated by this item of the questionnaire necessitated the conversion of data into readily tabulated averages. Table LV presents a summary of this data by institution granting the bachelors degree and by year of graduation. Sufficient information for tabulation was provided by only 84 respondents.

Graduates held jobs in an average of 1.9 cities or states. On the basis of this factor, university graduates were found to be relatively more mobile than graduates of the three former state colleges, with respondents from OSU being the most mobile of all. With respect to mean number of jobs held, institutional variations were considerable, but graduates of CS and OSU could be classified as the most mobile, while those from NES were the least mobile. An average of 16 months per job would indicate that respondents from all institutions were quite mobile. The greater mobility of NES graduates, as indicated by an average of 13 months per job, is biased by the relatively larger number of 1972 graduates responding from that school. Likewise, the

TABLE LV

RESPONDENT MOBILITY: MEAN NUMBER OF JOB LOCATIONS, MEAN NUMBER OF JOBS HELD AND MEAN MONTHS PER JOB

Category of Response	Number of Respondents	Mean Number Job Locations	Mean Number Jobs Held	Mean Months Per Job
By Institution:				
CS	16	1.7	2.8	18
ECS	18	1.8	2.6	15
NES	13	1.8	1.8	13
OSU	21	2.2	2.8	15
OU	16	1.8	2.0	21
All	84	1.9	2.3	16
By Year of Graduation:				
1967	15	2.2	2.6	28
1968	10	2.6	2.9	21
1969	7	2.3	3.1	15
1970	21	1.7	2.2	16
1971	9	2.1	2.7	9
1972	22	1.3	1.7	7
All	84	1.9	2.3	16

validity of an assumption of immobility for OU graduates is reduced because a greater number responded for 1967 than for any other year.

A scrutiny of the data broken down by year of graduation reveals that 1968 graduates were the most mobile in terms of the mean number of job locations. However, 1972 graduates were not necessarily the least mobile in that they had considerably less time to relocate than did graduates from other years. Graduates of 1969 stand out as being the most mobile on the basis of mean number of jobs held. Again, as might be expected, 1972 graduates ranked lowest in mean number of jobs held. Predictably, as a result of variations in the length of time spent by graduates in the working force, the highest and lowest average number of months per job were recorded for 1967 and 1972 graduates, respectively.

General Fields of Employment

A basic career goal of many undergraduate majors in geography is to obtain employment in areas that require broadly educated people but demand no specific professional preparation.[1] Therefore, it seemed desirable to classify the graduates from whom sufficient data were obtained to identify their general fields of employment. This should enable professional geographers at participating institutions to observe the vocational directions taken by former majors.

Table LVI presents a breakdown of respondents' fields by institution and by year of graduation. It should be noted that a majority of graduates from all institutions except NES reported employment in business or government. Education was the most frequently mentioned employment field of graduates from the latter institution. One explanation for this might be the persistence of teacher preparation programs at that former state teacher's college.

When responses are compared by years, it is interesting to note that a much larger proportion of graduates of the 1970's were employed in business and industry. This seems to reflect the rapid expansion of the job market in those fields in recent years.

Jobs in Geography or Related Fields

Of the 96 respondents who provided information regarding general fields of employment, 48 indicated that their specific jobs were in geography or related areas. The various types of jobs reported by those respondents are delineated in Figure 5. It is interesting that over one-half of the respondents mentioned teaching or urban or regional planning as their occupations. This tends to substantiate the research findings of the Commission on College Geography which indicated that:

1. The career goal of the largest group of undergraduate geography majors in the United States is to become teachers in elementary and secondary schools.
2. Another important goal of geography majors is to enter professional and sub-professional

TABLE LVI

GENERAL FIELDS OF EMPLOYMENT REPORTED BY RESPONDENTS IN 1974

Category of Responses	Fields								Total Responses	Per cent
	Business		Education		Government		Industry			
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent		
By Institution:										
CS	9	45.0	5	25.0	6	30.0	0	0.0	20	100.0
ECS	7	33.3	1	4.8	9	42.8	4	19.1	21	100.0
NES	2	14.3	7	50.0	2	14.3	3	21.4	14	100.0
OSU	9	39.1	1	4.4	9	39.1	4	17.4	23	100.0
OU	6	33.3	2	11.1	7	38.9	3	16.7	18	100.0
Total	33	34.4	16	16.7	33	34.4	14	14.5	96	100.0
By Year of Graduation:										
1967	6	33.3	4	22.3	6	33.3	2	11.1	18	100.0
1968	2	22.2	2	22.2	3	33.4	2	22.2	9	100.0
1969	3	37.5	2	25.0	3	37.5	0	0.0	8	100.0
1970	11	44.0	4	16.0	7	28.0	3	12.0	25	100.0
1971	5	38.5	1	7.7	6	46.1	1	7.7	13	100.0
1972	6	26.1	3	13.0	8	34.8	6	26.1	23	100.0
Total	33	34.4	16	16.7	33	34.4	14	14.5	96	100.0

Type of Employment	Number Employed	Per Cent of Total
Teacher	15	31.2
Planner, Urban or Regional	10	20.8
Military Service[a]	9	18.8
Area Analyst	4	8.3
Cartographer	4	8.3
Environmental Specialist	3	6.3
Surveyor	2	4.2
Travel Agent	1	2.1

[a]Includes Mapping, Reconnaissance, etc.

Figure 5. Specific Employment in 1974 in the Field of Geography, or Closely Related Fields, by 48 Geography Graduates

> careers without further training. These people would like to be able to tell a prospective employer that they are geographers, and wish to be prepared to assume specific, recognized vocations in areas such as cartography or planning, which are in demand in the labor market.[2]

It is perhaps unfortunate that the careers of more graduates who participated in this research do not reflect these goals. Hopefully, the findings and recommendations presented in this paper will provide information which will enable geography departments in Oklahoma institutions of higher education to structure programs designed to increase their output of graduates capable of securing and maintaining employment as geographers.

Conclusion

Ninety-six graduates completed all or part of the Employment History section of the questionnaire. More than one-half of those responding were able to obtain initial employment with two interviews or less. The number of interviews required by respondents was found to be closely related to the assistance they received from faculty members of their major departments in securing employment. Over 90 per cent of the respondents secured first jobs within a year of receiving the baccalaureate degree. Those who did not cited additional formal education as the reason for later entry into the job market. Graduates accepted first jobs in 21 states, but the largest number (particularly from the state colleges and from the 1970's) remained in Oklahoma for

their initial employment.

The average beginning salary of university graduates was higher than that of former state college graduates. University graduates' average salary was also higher in 1973 but the difference had been significantly reduced. Graduates of the 1970's had a higher mean beginning salary than graduates of the 1960's but by 1973 this had become reversed. Salary advancement data indicated that total mean increases from 1968-1973 were larger for graduates of the 1960's than for those of the 1970's. However, mean monthly increases were higher for the latter group.

A large majority of respondents replied that geography or geographic analysis was not the major skill of their present employment. Exceptions were graduates of NES and those who received baccalaureate degrees in either 1968 or 1971. A lack of job opportunities in geography and the greater remunerative rewards available in other fields were most frequently cited by graduates as reasons for accepting employment outside the area of their undergraduate specialization.

Of 31 graduates who indicated that geography was the major skill of their present employment, 23 stated that sufficient opportunity existed for advancement in rank and salary.

On the basis of information provided regarding numbers, dates, and locations of jobs held, respondents were found to be quite mobile. University graduates were somewhat more

mobile than graduates of the former state colleges. CS and OSU graduates were the most mobile and NES graduates the least mobile when the mean number of jobs held was the criterion for determining mobility. With mean months per job as the yardstick, NES graduates were relatively more mobile and OU graduates relatively less mobile than those from other institutions.

The general fields in which the largest numbers of geography graduates were employed were business and government. NES was the only school for which a majority of graduates were employed in education. Of the 48 respondents who reported jobs in geography or related fields, 25 stated that they were either teachers or urban or regional planners.

FOOTNOTES

[1]Undergraduate Major Programs in American Geography, p. 8.

[2]Ibid.

CHAPTER VIII

SUMMARY AND RECOMMENDATIONS

Summary of Findings

The study was concerned with: (1) assessing the relevance of the geographic education to which a selected group of Oklahoma college and university graduates was subjected with relevance being defined by the individual graduate in terms of his stated satisfactions with various phases of undergraduate geography training; and (2) constructing a composite profile of graduates for the purpose of providing information to assist the involved geography departments in future curriculum review and planning. Criteria used as indicators of relevance were the perceptions of graduates regarding the degree to which the undergraduate major program prepared them to pursue graduate study successfully, to secure and maintain geographic employment, and to advance professionally in rank and salary.

Data used in the research were collected by means of a mailed questionnaire comprised of 31 items divided into four sections: The Geography Major, College Advisement, Graduate Study and Employment History.

The survey instrument was submitted to all available geography majors who received baccalaureate degrees during

the years 1967-1972 from five state-supported institutions of higher education in Oklahoma: Central State University, East Central State University, Northeastern State University, Oklahoma State University, and the University of Oklahoma. Of the 174 graduates to whom the questionnaire was presumed to have been delivered, 104 (59.7%) completed and returned it.

Biographical information provided by respondents indicated that 84 graduates were males and 20 were females. A majority were recipients of a Bachelor of Arts degree and were of "college age" at the time the baccalaureate was conferred. The responses of these graduates provided the bases for the summary and recommendations presented in the succeeding sections of this chapter.

The Geography Major

The most important reason given by graduates for selecting a geography major was "a general long-time fascination with the subject." Substantial numbers also cited effective instruction and college counseling as factors influencing their choice of undergraduate specialization.

A majority of respondents elected their major during the sophomore year in college and earned 31 or more credit hours in geography.

Courses in the respondents' major field which were indicated most frequently as being beneficial in post-graduate employment were Physical Geography, Cartography, and

Economic Geography. Most often perceived by graduates as being of little utility in an employment situation were Economic Geography, Political Geography and courses in regional geography. Instructional quality and the nature of course content were cited as the principle reasons for either high or low ratings of courses.

Several geography courses were mentioned by respondents as being desirable but unavailable. Listed most frequently were Urban Planning, Cartography, Computers in Geographic Analysis, and Air Photo Interpretation. It should be noted that each of these courses emphasizes the mastery of a skill or methodology of practical value in professional or sub-professional careers in geography.

A majority of graduates felt that more emphasis on courses outside of geography was unnecessary. Those who disagreed expressed a desire for additional cognate courses in mathematics/statistics/computer science, social science, environmental science, and geology.

Relatively few graduates rated instruction in geography courses as inferior. Superior ratings were numerous, and physical geography instruction was rated more highly than that in any other area.

A majority of respondents from all institutions included in the survey except NES indicated that insufficient career information was provided by their major departments, and most graduates, irrespective of institution, felt that departmental assistance in securing employment was inadequate.

When graduates were asked whether their major program in geography adequately prepared them to secure employment and to perform the duties required by their jobs, more than 73 per cent replied that it did not.

College Advisement

A large majority of respondents surveyed reported that their advisors were members of the geography department faculty.

Six advisement factors were selected for assessment by graduates. While there were considerable variations in the respondents' ratings of these factors, the one receiving the highest rating was "the advisor's knowledge of curriculum and degree requirements." The factor rated lowest was "vocational information provided by the advisor." Over 70 per cent of the respondents rated the overall quality of their college advisement as satisfactory or superior.

Institutional variations in graduates' perceptions of advisement were observed. NES graduates perceived their advisement as satisfactory or superior more frequently than did graduates of other institutions. Conversely, OSU and OU graduates expressed greater dissatisfaction with their advisement than did other respondents.

Graduate Study

Fifty-seven geography graduates indicated they had completed coursework beyond the baccalaureate degree. OSU

and OU had a higher percentage of respondents who had attended graduate school than did the three state colleges.

A majority of those respondents reported the completion of less than 30 hours of graduate coursework. Just 21 had received degrees beyond the bachelors and only one had completed requirements for a degree higher than the masters.

Nearly 65 per cent of the respondents felt that geography department faculty had not sufficiently advised or assisted them in the selection of a school for graduate study. Notable exceptions were graduates of NES and those from 1972, a majority of whom responded positively to the question.

The undergraduate geography courses perceived by respondents to be most beneficial as preparation for graduate study were those emphasizing basic concepts, methods or skills of geographic analysis. Deemed least beneficial were courses in which instruction was felt to be inadequate or those in which the content was inordinately repetitive.

A majority of graduates from all institutions and all years surveyed believed that their undergraduate training in geography provided them with sufficient background to pursue graduate study successfully. Those who disagreed indicated that the excessive number of required credit hours in geography prevented them from taking courses in cognate fields which would have broadened their preparation for advanced study.

Employment History

More than one-half of the graduates who responded to this section of the questionnaire were able to obtain initial employment with two interviews or less. The number of interviews required by respondents in order to obtain the first job was closely related to the assistance they received from geography faculty in securing employment.

Over 90 per cent of the respondents secured first jobs within a year of receiving the baccalaureate degree. Those who did not cited additional formal education as the reason for delayed entry into the job market. Graduates accepted initial employment in 21 states, but the largest number (particularly from the state colleges and the 1970's) remained in Oklahoma for their first jobs.

The average beginning salary of university graduates was $632 per month, $36 higher than that of former state college graduates. University graduates' average salary of $912 for 1973 was also higher than that of state college graduates ($903), but the difference had been significantly reduced.

As might be expected, graduates of the 1970's had a higher mean entry salary ($638) than did graduates of the 1960's ($560), but by 1973 a reversal had occurred with 1960's graduates reporting a mean salary of $945 as compared with $888 for those of the 1970's.

Interestingly, those graduates who delayed initial employment in order to pursue graduate study had an average

beginning monthly salary of $876, nearly $250 higher than that of respondents who accepted full-time employment without or before continuing their education.

Salary advancement data indicated that total monthly increases from 1968-1973 averaged larger for graduates of the 1960's than for those of the 1970's. However, mean monthly increases were higher for the latter group.

A large majority of respondents (67.7%) replied that geography or geographic analysis was not the major skill of their present employment. Exceptions were graduates of NES and those who received baccalaureate degrees in 1968 and 1971. A lack of job opportunities in geography and the greater remunerative rewards available in other fields were most frequently cited by graduates as reasons for accepting employment outside the area of their undergraduate specialization.

Those graduates who rated their advisors as satisfactory or superior with respect to the provision of vocational information and/or those who had completed 30 or more graduate hours were more likely to find employment in which geography was a major skill.

Of 31 graduates who indicated that geography was the major skill of their present (1974) employment, 23 felt sufficient opportunity existed for advancement in rank and salary.

On the basis of information provided regarding numbers, dates, and locations of jobs held, respondents were found to

be quite mobile. University graduates were somewhat more mobile than those of the former state colleges. CS and OSU graduates were the most mobile and NES graduates the least mobile when mean number of jobs held was utilized as the basis for determining mobility. With mean months per job as a criteria, NES graduates were relatively more mobile and OU graduates relatively less mobile than those from other schools.

The general fields in which the largest numbers of geography graduates were employed were business and industry. NES was the only school for which a majority of graduates were employed in education. Of the 48 respondents who reported jobs in geography or related fields, 25 indicated they were either teachers or urban or regional planners.

Recommendations

The following recommendations based upon responses of graduates to the 31 items in the questionnaire and upon their additional comments and criticisms presented in Appendix E would seem to be appropriate:

1. Geography departments should formulate a clearly defined set of goals and objectives for their undergraduate major programs with the career aspirations of students in mind. It would be worthwhile to structure curricula with sufficient flexibility to meet the needs of majors who desire: (1) to become liberally educated

citizens without specific career goals in geography; (b) to become elementary or secondary school teachers; (c) to seek a graduate degree in geography in order to become professional geographers in college teaching, government service, business or industry; or (d) to enter professional or sub-professional careers without further training.[1] Possibly, the same basic major program, with minor elective adjustments could serve the first three groups, but the fourth group might require its own curriculum with a certain number of specialized courses which develop marketable skills.[2] If limited departmental staff and facilities make the inclusion of all four goals seem unrealistic, those which can be included feasibly should be clearly explained to prospective majors in order to reduce the possibility of retrospective disillusionment with their undergraduate programs.

2. In view of expressed graduate dissatisfaction with several geography courses, it would seem imperative that departments should develop evaluation systems whereby inordinately repetitive courses or those of questionable value either could be restructured or eliminated from the curriculum. Findings of this research

indicate that courses which emphasize basic methods, concepts or skills of geographic analysis and those with a problem-solving orientation should form the core of undergraduate major programs.

3. Comments by graduates regarding factors which contributed to the success of their undergraduate programs would suggest that outstanding classroom teaching should be rewarded commensurately with excellence in research and publication.

4. Geography departments should strive to develop or improve vehicles for dissemination of career information to undergraduate majors and to provide them greater assistance in securing initial employment after graduation. Means used to accomplish these necessary services could include: informal meetings at the beginning of each school year wherein faculty members could discuss with potential and declared majors opportunities for rewarding occupations in geography and the types of training required for securing employment in various areas; and the development of liaisons between department chairmen and prospective employers whereby qualified graduates might obtain jobs in their area of undergraduate specialization.

5. Departments involved in this study should attempt to upgrade the quality of their undergraduate advisement services, particularly with respect to vocational information provided for students and to counseling of students in non-major problems. Strengthening communication between departmental advisors and institutional counseling services should be beneficial. Assigning advisement duties to faculty who desire to counsel students and recognizing and rewarding those who make outstanding contributions in this area also should improve the overall quality of advisement.
6. Judging from the relatively small number of undergraduate geography majors produced by the institutions participating in this research, a re-evaluation of recruitment policies and methods appears to be warranted. Greater numbers of majors might be attracted to the discipline if: (a) regular newsletters were published by departments to inform students and alumni of noteworthy accomplishments of majors, graduates, and faculty and also to publicize upcoming activities and events; (b) undergraduate geography clubs were organized to maintain the morale of majors and to attract the attention of potential majors through social

events, field trips and outstanding lectures by well-known geographers; (c) faculty representatives were encouraged to visit area elementary and secondary schools to generate interest in geography as a career; and (d) "alumni days" were scheduled to attract former graduates to the campus and to rekindle their enthusiasm for the institution and the geography department.

7. Additional follow-up studies of graduates surveyed in this research and those for subsequent years should be conducted by departments to provide up-to-date information which might be utilized in future curriculum evaluation.

For future studies, individual institutions might employ a shorter survey instrument which should encourage responses from a larger number of graduates. Analysis of data would be facilitated if such an instrument were pre-coded and adaptable to punched card or computerized system.

Overall, this study indicates a pressing need and a challenging opportunity for geography departments in Oklahoma colleges and universities to evaluate their programs for undergraduate majors and to alter them as necessary for greater relevance to the post-graduate needs of students.

Beyond this, a call would seem to be in order for national organizations of geographers to actively encourage

and financially support further research in this area of curriculum evaluation.

FOOTNOTES

[1] Undergraduate Major Programs in Geography, p. 8.

[2] Ibid.

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APPENDIX A

THE QUESTIONNAIRE

QUESTIONNAIRE

Sex _____
(M-F)

Date of Birth _____

Institution granting degree(s) _____

Degree(s) granted _____

Date of graduation _____

THE GEOGRAPHY MAJOR

1. Please rank in 1-2-3 order, with 1 representing the primary reason, the 3 major factors contributing to selection of geography as a major field of study:
   a. _____Counseling by high school teachers or counselors.
   b. _____Counseling by college teachers or counselors.
   c. _____Interest in the field stimulated by effective high school or college instruction.
   d. _____Association with other students majoring in geography.
   e. _____Career literature.
   f. _____Aptitude or interest test results.
   g. _____General long-time fascination with the subject.
   h. _____Other (please specify). _____
   i. _____Other (please specify). _____
   j. _____No second factor influenced my selection.
   k. _____No third factor influenced my selection.

2. When did you decide to major in geography?
   a. _____Before enrolling in college.
   b. _____During freshman year.
   c. _____During sophomore year.
   d. _____During junior year.
   e. _____During senior year.

3. How many semester credit hours of geography did you earn as an undergraduate?
   a. _____18-21
   b. _____22-25
   c. _____26-30
   d. _____31-35
   e. _____36 or more

4. During your undergraduate work what would you estimate your overall grade average to be?
   a. _____A
   b. _____A-
   c. _____B+
   d. _____B
   e. _____B-
   f. _____C+
   g. _____C
   h. _____C-
   i. _____Below C-

5. Of all the geography courses taken in your major program, which would you consider to be the 3 most beneficial in terms of utility in your postgraduate employment? (See appendix for list of courses) List course and reason for high rating:
   a. _____

b._____
c._____

6. Of all the geography courses taken in your major program, which would you consider to be the 3 least beneficial in terms of utility in your postgraduate employment? (See appendix for list of courses) List course and reason for low rating:
a._____
b._____
c._____

7. What geography course(s) do you wish you could have taken but were not offered or could not be worked into your schedule? (Please list)

_____
_____
_____
_____
_____

8. Do you think that more emphasis should have been placed on courses outside of geography?
a. _____ yes b. _____ no
If your answer is yes, what courses should have been given more emphasis?

_____
_____
_____

9. Please indicate any area of geography in which you would evaluate the instruction you received as being definitely either superior or inferior, as compared with what you consider average or satisfactory instruction: (See appendix for list of courses in each area)
a. Physical Geography ___superior, inferior___
b. Cultural or Social Geography ___superior, inferior___
c. Economic Geography ___superior, inferior___
d. Regional Geography ___superior, inferior___
e. Urban Geography ___superior, inferior___
f. Philosophy and Methodology of Geography ___superior, inferior___
g. Geographic Education ___superior, inferior___
h. Historical Geography ___superior, inferior___
i. Political Geography ___superior, inferior___
j. Environmental Studies ___superior, inferior___

10. Did your department provide you with information regarding career opportunities in geography? a. ___yes b. ___no

11. Did any faculty member(s) in your department assist you in securing employment after graduation? a. ___yes b. ___no

12. Did your geography program adequately prepare you for securing employment and performing duties required of you in your line of work? a. ___yes b. ___no

If you answered no, what is your single most important criticism of departmental deficiency? _____
_____
_____

13. If you had an advisor, was he a member of the geography department faculty? a. ___yes b. ___no

14. If you had an advisor, would you please rate the following advisement factors by placing an "x" in the column most descriptive of your advisement.

FACTORS	RATINGS		
	Superior	Satisfactory	Inferior
a. Availability of advisor for counsel.			
b. Advisor's knowledge of major and degree requirements			
c. Advisor's willingness and ability to work with students.			
d. Advisor's interest in your program.			
e. Advisor's interest in and understanding of your non-major problems.			
f. Vocational information provided by your advisor.			
g. Your over-all rating of advisement.			

GRADUATE STUDY

15. Have you completed any college coursework beyond the bachelor's degree? a. ___yes b. ___no
If your answer to question 15 is no, please proceed to the next section beginning with question 23.

16. How many credit hours have you completed beyond the bachelors degree? a. _____semester hours b. _____quarter hours.

17. How many of these hours were directed toward completion of an advanced degree? _____

18. If you have completed all the requirements for any degree beyond the bachelors, please list the name of the degree earned, major area of concentration, the school where the work was completed and the date the degree was conferred.

DEGREE	MAJOR	SCHOOL	DATE

19. Did the chairman or any other member of your department advise or assist you in the selection of a school for graduate study?
a. ___yes b. ___no

20. Of all the geography courses taken in your major program, which would you consider to be the 3 most beneficial in terms of your preparation for graduate study? (List course and reason for high rating)
    a. _____
    b. _____
    c. _____

21. Of all the geography courses taken in your major program, which would you consider to be the 3 least beneficial in terms of your preparation for graduate study? (List course and reason for low rating)
    a. _____
    b. _____
    c. _____

22. In your opinion, did your undergraduate training in geography provide you with sufficient background to pursue graduate study successfully?
    a. ___yes b. ___no
    If your answer is no, in what areas did you feel the greatest deficiencies existed? _____
    _____
    _____

EMPLOYMENT HISTORY

23. How many prospective employers did you interview before accepting your first job after graduation? _____

24. What month and what year did you accept your first job after graduation? _____, 19____.

25. In what city and what state was this first job located?
    _____, _____

26. What was your initial salary per month? $_____.

27. What has been your approximate salary on the employment anniversary (of the date given in question 24) each year through 1973?
    _____, _____, _____, _____, _____, _____
    1968 1969 1970 1971 1972 1973

28. Do you consider some phase of geography or geographic analysis to be the major skill of your present position? a. ___yes b. ___no

29. If in your present position considered in the preceding question you are not engaged in any geographic work, what do you feel is the major factor that caused you to accept employment outside the area of your undergraduate specialization? _____
    _____
    _____

30. If you are employed in some phase of geography (teaching, research, planning, etc.) do you feel sufficient opportunity exists for advancement in rank and salary in your present position?
    a. ___yes b. ___no

31. Please complete the form below to indicate your employment history with regard to dates of employment, employing individual or firm, and the position you held.

Inclusive Dates (month and year)	Employer	City and State	Position

Please make any comments concerning your undergraduate geography education which you feel would be of assistance in its critical evaluation.

None of the information supplied by you will be made available to your college or university, nor will it be identified with you in any way. However, to enable your major department to update records of its graduates, you may complete the following section if you so desire:

Name _____

Address _____

_____

_____

Thank you very much for your cooperation!

APPENDIX

A. Physical Geography
1. Introductory Physical
2. Climatology
3. Meteorology
4. Biogeography
5. Geomorphology
6. Physiography
7. Independent study
8. Geography of soils

B. Cultural Geography
1. Introduction to Social or Cultural Geography
2. Demography
3. Medical Geography
4. Sport Geography
5. Geography of Crime
6. Geography of music and folklore
7. Human Ecology
8. Independent study
9. Seminar in Social-Cultural Geography
10. Comparative cultures
11. Intro. Human Geography

C. Economic Geography
1. Principles of Economic Geography (Intro.)
2. Primary Production (Agriculture Geography)
3. Industrial Geography
4. International Trade
5. Transportation Geography
6. Mining and Mineral Geography
7. Independent study
8. Advanced Economic Geography

D. Regional Geography
1. World Regional Geography
2. Anglo-America
3. Middle or Central America
4. South or Latin America
5. Africa (Sub-Saharan)
6. Middle East and North Africa
7. Europe (general)
8. Western Europe
9. Eastern Europe
10. U.S.S.R.
11. Asia (general)
12. Southern Asia
13. The Far East
14. Pacific World and Australia
15. Independent study
16. Regional analysis
17. Oklahoma Geography

E. Urban Geography
1. Introduction to Urban Geography
2. Urban Land Use
3. Urban Planning
4. Problems in Urban Geography
5. Urban Transportation Systems
6. Advanced Urban Geography

F. Philosophy and Methodology
1. Philosophy and History of Geography
2. Maps and Map Interpretation
3. Cartography (Introductory)
4. Quantitative Methods in Geography
5. Computers in Geographic Analysis
6. Field and Survey Techniques
7. Research methods in Geography
8. Air Photo Interpretation
9. Remote Sensing
10. Systems and Models in Geography
11. Advanced Cartography

G. Geographic Education
1. Geography for Elementary Teachers
2. Geography for Secondary Teachers
3. Conservation Education
4. Models, Games and the Systems Approach in Teaching Geography
5. The use of audio-visual materials in geographic education
6. Research methods in geographic education
7. Independent study in geographic education

H. Historical Geography
   1. Historical Geography of the U.S.
   2. Seminar in Historical Geography

I. Political Geography
   1. Independent Study in Geopolitics
   2. Political Geography

J. Environmental Studies
   1. Resource Management in the U.S.
   2. Conservation of Natural Resources

APPENDIX B

LETTERS OF TRANSMITTAL

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

STILLWATER, OKLAHOMA 74074
(405) 372-6211, EXT. 595, 596

May 21, 1974

Dear

Inasmuch as academic programs require constant re-examination, the geography department of Central State University is assisting in a study designed to contact their recent graduates in order to ascertain what they perceive to be the strengths and weaknesses of the program which they completed.

As can be seen from the enclosed letter from Mr. Thomas Hawkins, this study has been endorsed by the faculty of Central State University. Through your participation, results of this study will stimulate a judicious evaluation of and (where necessary) restructuring of the geography program so that its relevance to the needs and interests of future students will be enhanced.

I fully realize that one's first inclination upon receipt of such a questionnaire is to throw it in the wastebasket. Please...don't do it this time. Your response is of the utmost importance to the success of this study. I greatly appreciate your prompt cooperation.

A stamped self-addressed envelope is enclosed for your convenience. Thank you again.

Sincerely,

Don Hagan

Don Hagan
Ed.D. Candidate

DH:df

Enclosure

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

STILLWATER, OKLAHOMA 74074
(405) 372-6211, EXT. 595, 596

May 21, 1974

Dear

Inasmuch as academic programs require constant re-examination, the geography department of East Central State College is assisting in a study designed to contact their recent graduates in order to ascertain what they perceive to be the strengths and weaknesses of the program which they completed.

As can be seen from the enclosed letter from Dr. Robert V. Garner, this study has been endorsed by the faculty of East Central State College. Through your participation, results of this study will stimulate a judicious evaluation of and (where necessary) restructuring of the geography program so that its relevance to the needs and interests of future students will be enhanced.

I fully realize that one's first inclination upon receipt of such a questionnaire is to throw it in the wastebasket. Please...don't do it this time. Your response is of the utmost importance to the success of this study. I greatly appreciate your prompt cooperation.

A stamped self-addressed envelope is enclosed for your convenience. Thank you again.

Sincerely,

Don Hagan

Don Hagan
Ed.D. Candidate

DH:df

Enclosure

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

STILLWATER, OKLAHOMA 74074
(405) 372-6211, EXT. 595, 596

May 21, 1974

Dear

Inasmuch as academic programs require constant re-examination, the geography department of Northeastern State College is assisting in a study designed to contact their recent graduates in order to ascertain what they perceive to be the strengths and weaknesses of the program which they completed.

As can be seen from the enclosed letter from Mr. Charles Rogers, this study has been endorsed by the faculty of Northeastern State College. Through your participation, results of this study will stimulate a judicious evaluation of and (where necessary) restructuring of the geography program so that its relevance to the needs and interests of future students will be enhanced.

I fully realize that one's first inclination upon receipt of such a questionnaire is to throw it in the wastebasket. Please...don't do it this time. Your response is of the utmost importance to the success of this study. I greatly appreciate your prompt cooperation.

A stamped self-addressed envelope is enclosed for your convenience. Thank you again.

Sincerely,

Don Hagan

Don Hagan
Ed.D. Candidate

DH:df

Enclosure

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

STILLWATER, OKLAHOMA 74074
(405) 372-6211, EXT. 595, 596

May 21, 1974

Dear

Inasmuch as academic programs require constant re-examination, the geography department of Oklahoma State University is assisting in a study designed to contact their recent graduates in order to ascertain what they perceive to be the strengths and weaknesses of the program which they completed.

As can be seen from the enclosed letter from Dr. John F. Rooney, Jr., this study has been endorsed by the faculty of Oklahoma State University. Through your participation, results of this study will stimulate a judicious evaluation of and (where necessary) restructuring of the geography program so that its relevance to the needs and interests of future students will be enhanced.

I fully realize that one's first inclination upon receipt of such a questionnaire is to throw it in the wastebasket. Please...don't do it this time. Your response is of the utmost importance to the success of this study. I greatly appreciate your prompt cooperation.

A stamped self-addressed envelope is enclosed for your convenience. Thank you again.

Sincerely,

Don Hagan

Don Hagan
Ed.D. Candidate

DH:df

Enclosure

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

STILLWATER, OKLAHOMA 74074
(405) 372-6211, EXT. 595, 596

May 21, 1974

Dear

Inasmuch as academic programs require constant re-examination, the geography department of Oklahoma University is assisting in a study designed to contact their recent graduates in order to ascertain what they perceive to be the strengths and weaknesses of the program which they completed.

As can be seen from the enclosed letter from Dr. Thomas Wilbanks, this study has been endorsed by the faculty of Oklahoma University. Through your participation, results of this study will stimulate a judicious evaluation of and (where necessary) restructuring of the geography program so that its relevance to the needs and interests of future students will be enhanced.

I fully realize that one's first inclination upon receipt of such a questionnaire is to throw it in the wastebasket. Please...don't do it this time. Your response is of the utmost importance to the success of this study. I greatly appreciate your prompt cooperation.

A stamped self-addressed envelope is enclosed for your convenience. Thank you again.

Sincerely,

Don Hagan

Don Hagan
Ed.D. Candidate

DH:df

Enclosure

APPENDIX C

ENCLOSURE LETTERS

CENTRAL STATE UNIVERSITY
Edmond, Oklahoma 73034

DEPARTMENT OF GEOGRAPHY

June 12, 1974

Mr. Don Hagan
Dept. of Geography
Oklahoma State University
Stillwater, OK 74074

TO: CSU Graduates in Geography

Mr. Don Hagan of Oklahoma State University is conducting research for his doctorate and needs your assistance. You would be doing both him and Geography a favor if you would take a few minutes and complete the enclosed questionnaire.

My personal greetings to you, and come to see us at CSU when you are in this area.

Tom G. Hawkins

Tom G. Hawkins, Head
Geography Department

jm

EAST CENTRAL SCHOOL OF ENVIRONMENTAL SCIENCE
EAST CENTRAL STATE COLLEGE
ADA, OKLAHOMA 74820

Dear East Central Geography Graduate:

Would you please cooperate with the study being conducted by Mr. Hagan. I believe that your evaluation of this program would be of benefit to the Geography Department at East Central State College.

Sincerely,

Robert V. Garner, Ed.D.
Dean, School of Environmental
and Health Sciences and
Chairman, Geography Department

RVG:bb

Northeastern State College, TAHLEQUAH, OKLAHOMA 74464

Mr. Charles B. Rogers
Assistant Professor of Geography
Northeastern State College
Tahlequah, Oklahoma 74464

Dear Northeastern Geography Department Graduate:

I am aiding Mr. Don Hagan, an Oklahoma State University doctoral candidate, locate geography department graduates for a follow-up study. Mr. Hagan's study examines the relevance of geography training in Oklahoma colleges and universities. I agreed to locate our Northeastern State College geography department graduates.

I am personally requesting that you please take time to complete Mr. Hagan's questionaire in order for him to obtain the necessary data to complete this study. The results of his investigation should be of great value to our Northeastern Geography Department in course revision, and structure, plus formulating department objectives in the future.

Please complete the questionaire as quickly as possible and mail to Mr. Hagan in the enclosed envelope.

Thank you for your time and effort on this matter.

Sincerely,

Charles B. Rogers

Charles B. Rogers
Assistant Professor of Geography

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

STILLWATER, OKLAHOMA 74074
(405) 372-6211, EXT. 595, 596

May 20, 1974

Dear OSU Geographer:

I am writing to ask for your cooperation in a study being conducted by Mr. Don Hagan, one of our doctoral students. Don is attempting to contact all recent graduates of our department and a number of other departments within the state. His study is concerned with the suitability of geography curricula in our present day job market. His questionnaire is designed to evaluate your personal opinion in regard to the training you received while an undergraduate here.

Your completion of the enclosed questionnaire will benefit both Don Hagan and the Department of Geography. We are planning to use the results of Don's study as a basis for possible changes in our curriculum. Therefore, you can see how important it is that we have your opinions on this matter.

I hope that all is going well for you. As you probably know there have been many changes made here since your graduation. If you are in the area, please stop by and see us.

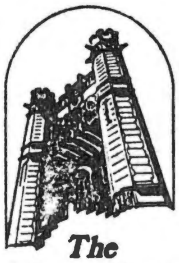
Sincerely yours,

John Rooney

John F. Rooney, Jr.
Professor and Head

JFR:df

Enclosure



The University of Oklahoma 455 West Lindsey, Room 804 Norman, Oklahoma 73069

Department of Geography

Dear Fellow Geographer:

We in your old department would appreciate your cooperation with Don Hagan in his study of undergraduate geography programs in Oklahoma. We expect the project to help us a great deal in improving our own program--and especially in making it more useful as a preparation for life and work after graduation. Your help in filling out the questionnaire will be greatly appreciated.

I would like to take this opportunity to invite you, in addition, to pass on any comments or recommendations you might want to make directly to me, and I would like to extend a warm invitation to come back to see us at any time. This is a lively, changing department, and we want it to stay in regular contact with our family of Oklahoma geographers.

Cordially yours:

Thomas J. Wilbanks
Chairman

APPENDIX D

THE FOLLOW-UP TRANSMITTAL LETTER

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

STILLWATER, OKLAHOMA 74074
(405) 372-6211, EXT. 595, 596

July 10, 1974

Dear Graduate:

If you have completed and returned the questionnaire to be used in the evaluation of Oklahoma undergraduate geography programs, I want to thank you for your prompt cooperation!

The success of this type of study depends upon a response from each graduate of the institutions involved in the research project. If you have not yet returned your questionnaire, I am enclosing another copy for your convenience. We shall greatly appreciate it if you complete the form and return it in the stamped envelop previously provided. Thank you again for assisting us.

Sincerely,

Don Hagan
Department of Geography
Oklahoma State University
Stillwater, Oklahoma
74074

APPENDIX E

STATISTICAL TESTS OF SIGNIFICANCE AND THEIR MEASURES OF CORRELATION

Tests of Significance

In order to test a general null hypothesis that no significant association exists among variables being correlated, the Chi-square, Corrected Chi-square, and Fisher's Exact tests were utilized. A brief explanation of these tests and a presentation of their formulae follows.

Chi-square

Pearson's Chi-square test of association tests the independence (or lack of statistical association) between two variables. It does not measure the degree of association; it only indicates the likelihood of having a distribution as different from statistical independence by chance alone as the observed distribution. Its formula is:

$$\chi^2 = \sum_i \frac{(f_o^i - f_e^i)^2}{f_o^i}$$

with $(r-1)(c-1)$ degrees of freedom, where f_o^i equals the observed frequency in each cell, f_e^i equals the expected frequency, c equals the number of columns in the table, and r equals the number of rows in the table. The expected frequency f_e^i is calculated as

$$f = \frac{c_i r_i}{N}$$

where c_i is the frequency in a respective column marginal, r_i is the frequency in a respective row marginal, and N stands for total number of valid cases.

The probability figure given in the Chi-square table indicates on what level the difference between the observed distribution and the expected distribution can be thought as significant. It shows the probability of having as much difference between the sample distribution and the expected distribution if in fact the population distribution were independent. For example, if the probability associated with given value of χ^2 is .05, one can reject the null hypothesis of no significant association at the significance level of .05 or greater (or the confidence level of 95% or less).[1]

Corrected Chi-square

When the Ci-square statistic is computed for 2 X 2 contingency tables, the following formula is used:

$$\chi^2 = \frac{N\left(|AD - BC|\frac{N}{2}\right)^2}{(A+B)(C+D)(A+C)(B+D)} \qquad df = 1$$

This formula is somewhat easier to apply than the one used for tables with more than four cells inasmuch as only one division is necessary in the computation. It has the additional advantage of incorporating a correction for continuity which markedly improves the approximation of the distribution of the computed χ^2 by the Chi-square statistic.[2]

Fisher's Exact Test

Fisher's exact test is used with 2 X 2 contingency tables to yield exact, rather than approximate, probabilities. It is most useful for small samples. Its formula is

$$P = \frac{R_1!R_2!C_1!C_2!}{N!a!b!c!d!}$$

where R_1 equals the frequency total for row 1, R_2 equals the total for row 2, C_1 equals the total for column 1, C_2 equals the total for column 2; a, b, c, and d are all the frequencies of cells a, b, c, and d, respectively (assuming that the cells are lettered as in the accompanying diagram.

a	b	R_1
c	d	R_2
C_1	C_2	

If one finds the probability of the observed distribution, as well as every other possible distribution giving as much or more evidence of association, then one can test the hypothesis that the given distribution is purely a product of chance by taking the calculated sum of P_i values (or probability) as the significance level. Fisher's exact test is essentially one-tailed.

The value of the exact significance level (or probability) is calculated by computing P_i for the given table and also for each possible table with a variation on the distribution that is more extreme than that of the given table and then adding up all the values of P_i.[3]

Measures of Correlation

Once a statistically significant association between two variables has been determined, it is desirable to ascertain the degree of correlation between them. The tests employed for this purpose are the Phi Coefficient for 2 X 2 contingency tables and the Cramer's Coefficient of Contingency for tables larger than 2 X 2.

Phi Coefficient

> Phi makes a correction for the fact that the value of chi-square is directly proportional to that of N by adjusting the χ^2 value. Its formula is
>
> $$\text{Phi } (\varphi) = \sqrt{\frac{\chi^2}{N}}$$
>
> and for a 2 X 2 table, its values range from 0, when there is no relationship between the two variables, to 1, when the relationship between the two variables is perfect.[4]

Cramer's Coefficient of Contingency (V)

> When Phi is calculated for a table which is not 2 X 2, it has no upper limit. Therefore, Cramer's V is used to adjust phi for either the number of rows or the number of columns in the table, depending on which of the two is smaller. Its formula is
>
> $$V = \left(\frac{\varphi^2}{\text{Min}(r-1),(c-1)}\right)^{\frac{1}{2}}$$
>
> and its values will range from 0 to 1, regardless of the size of the table being tested. When the table being tested is actually 2 X 2, the value of Cramer's V will be equal to that of phi.[5]

FOOTNOTES

[1]Nie, Bent, and Hall, p. 275.

[2]Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York, 1956), p. 107.

[3]Nie, Bent, and Hall, pp. 275-276.

[4]Ibid., p. 276.

[5]Ibid.

APPENDIX F

ADDITIONAL COMMENTS AND CRITICISMS BY GRADUATES

Additional Comments and Criticisms by CS Graduates Evaluating Their Geography Curricula

"Under its present setup at CS, geography is more inclusive than any of the other social sciences--that is, a student finishes his undergraduate studies with a rather thorough understanding of such related subjects as economics, history and international relations. Perhaps his knowledge is even too broad or general, and he could gain more benefit from a degree in one specific phase of geography--such as political geography, climatology, etc."

"There is no excuse for outdated texts or lecture materials. As with all education programs, the professor or teacher creates the climate for learning. For this reason I was forced to accept inferior education."

"I majored in geography because I have liked it since I was a small boy. I like it now because it helps me to understand the very complicated world in which we live. Geography helps me to understand why things happen rather than simply tell what happened. I hope it will be useful in writing of travel and recreation."

"I felt I had very good instructors at CS. They were understanding and I enjoyed my study. Then, I felt a little lost when I could not find a job in a geography related field that did not require additional education or background."

"The entire programs of both undergraduates and graduates used textbooks to teach and they were quite lacking when dealing with the problems and needs of our society. In any area of college or university work retraining on an extensive scale is needed when one enters reality. Our so called higher education gets the lion's share of appropriations and gives out with the least usefullness in most cases."

"My course work in sociology, statistics, research and writing, and methodology, was as much responsible for my success as a graduate student as any geography course taken as an undergraduate."

"Greater student awareness during freshman year of vocational opportunities available to be sought thru specifically career oriented faculty. Faculty, if unable to help students in careers they desire should provide information as to where students should go to obtain an education oriented toward their career objectives."

"I was very pleased with the instruction and advice I received from Mr. Tom G. Hawkins while doing my undergraduate work. He is a very capable and effective teacher."

"Some of the poorest teachers I have encountered are teaching at the college level. I feel that most college instructors are knowledgeable in subject matter but are very poorly educated in methods. This is one area I feel should be improved."

"In order to introduce geography to students of elementary and junior high age you must be knowledgeable in all social science fields because basic books of the combined social sciences are used. Specifics are not necessary except in large high school geography classes."

"I would like to see technical programs--such as surveying, photogrammetry, map reading, and geologic information of geographic interest."

"I fully enjoyed my education in geography at CS. I only wish I had tried harder to find work in a field associated with my degree. I still am ignorant of opportunities in geography other than positions such as teaching."

"The program at CS trained one to teach or go to grad school. There are plenty of teachers and grad students to go around. I took 18 hrs. of cartography at ECSC (Oklahoma) then approx. 50 hrs. of surveying, mapping and math. I am now close to becoming a registered surveyor in Oklahoma. I considered the geography at CS interesting but rather silly."

"Give the courses more meat and less milk. Provide more emphasis on methods and tools. For example, cartography, surveying, computer science, more natural science and statistical mathematics and less regional geography. Of major concern is a program oriented on a problem solving basis, not the traditional ideas. For example, teaching teachers. But prepare the man to solve existing problems in the world."

Additional Comments and Criticisms by ECS Graduates Evaluating Their Geography Curricula

"Not much can be added. What I received was good at the time. Since then more has been offered due to interest and demand in the field as well as the need by society."

"My geography education was not specialized enough to obtain a job in the geography field. I did not receive adequate counseling until my senior year. Outside of teaching, geography programs should align with industry demands."

"Learn the theory basics and then get to the solid courses such as cartography, aerial photo interpretation. I felt totally unprepared with my degree and I am now using my minor--speech."

"At the time of my graduation, the school needed more career type courses to offer to their students so more of them could find employment in some geographic work."

"Since ECS offered in 66-70 only very basic geography courses--it filled my desire for an easy major. It prepared me for absolutely nothing."

"Good program at ECS."

"I enjoyed the undergraduate study but the field of study was not specialized enough. I did not have a counselor so this may have been part of the reason I did not take the right courses. To date my degree in geography has been of little value except in saying that I do have a college degree."

"I did not actually practice geography as a profession as I was drafted after graduation and entered graduate school after being discharged. I have found that the geography courses which I acquired at ECS as an undergraduate have been invaluable in my present profession. They have a good program at that school and I am thoroughly glad to have been a part of it."

"Very good instruction with personal interest shown by instructional staff to students."

"The geography department at ECS has some of the finest instructors of the many departments where I took courses. They were not only able to hold my interest, but were also extremely helpful in other areas of study."

"At that period of time not enough instruction was available in the fields of urban geography and transportation or the more modern techniques of geographic study i.e. computer application, remote sensing and the use of cartography equipment and techniques."

"I feel that over all the ECS geography department is small, but very productive. A limited staff and limited job opportunities for graduates probably has helped to keep the dept. small. I feel that for much more advancement for me, I will have to work for and complete my masters in the near future."

"More emphasis on a problem-solving type of curriculum in geography would be an advantage to undergraduates."

"My undergraduate geographic education had no practical application in the business world and this became quite apparent when I sought work. The field has fallen behind the times and is useful only in a teaching capacity or in rare government employment. My present employment utilizes geology, physics, math, and the use and understanding of digital computers. Only a background of science and a certain aptitude towards learning has enabled me to pursue this career."

"I am very satisfied with my geography education. I received help and advice from my professors whenever I needed any. I only wish there would have been a course specializing in wildlife management and related jobs."

"I transferred to ECS from OSU. At ECS the easiest and quickest way to get a degree considering my many hours in history and geography was to declare a double major in those fields. History was my main area of interest, and geography followed because after talking with other students, I found it was very easy to make good grades there provided you had good attendance in class."

Additional Comments and Criticisms by NES Graduates Evaluating Their Geography Curricula

"Mr. Rogers of the NES Geography Dept. was one of the finest instructors there. Lack of money for departmental updating of materials, slides, etc. Should be more resources, ecology, and urban courses added. With a undergraduate (senior level) in independent study of some approved subject--to keep geography majors up-to-date on the subject they are really interested in. More advisement on job opportunities other than teaching."

"I feel that I really should have had a career in geography, but as I finished my degree I came under heavy pressure to pay accrued debts. I was not interested in obtaining a teaching certificate so I obtained a BA. I could not determine the relationship between geography and the working professions in terms understandable to prospective employers, so I went to work full-time with the company I had been working summers for. I made great money but somehow still feel that I came out the loser."

"The only critical evaluation that stands out in my mind, is that it was unfortunate certain courses were not offered more frequently. Also some of my instructors enjoyed BS instead of teaching facts or geographic concepts!!"

"I feel my undergraduate study was very general; therefore, I have only used it in a general way. It was more than adequte for the use in teaching history I have made of it. It was invaluable as to my understanding of the world and its problems. I do not regret my decision to major in geography."

"Credit goes to the geography department at NES for their unofficial assistance in advisement. I was an elementary education major and therefore confined to the education department for official advisement. Inaccurate advisement from my official advisor as to changing my major to geography caused me to waste many hours in the field of elementary ed. Support from members of the geography dept. allowed me to work around this handicap."

"Geography is a wide open subject which could suit anyone's interest. It can also provide a background for almost any job field. My training in geography as an undergraduate was superb."

"I feel there should have been more information made available to students with regard to job opportunities in geography and related fields. Also I felt there was a need for improvement in student advisement."

"Almost all of the geography classes that I have taken have been constructive and beneficial to me--in my present teaching position."

Additional Comments and Criticisms

by OU Graduates Evaluating

Their Geography Curricula

"Grades not too good so advisor lacked interest. More concern with 'Geography' than students. Some courses were very good academically. Instructors were more interesting than those in Political Science. Few jobs were available on graduation; none available 3 years later."

"I audited some geology courses here at Princeton which helped me in my teaching. I would encourage a course or two in geology to go along with geography--if it can be worked in."

"I would have liked to have been advised of job opportunities in the area I wished to live in, then to have been a advised as to the courses to take in order to qualify for those jobs. As it was, I was just another BA looking for a job when I graduated, with a good general knowledge of my field."

"Purely from observing opportunities in military areas of endeavor, I feel that a background in geography that specialized in two or more areas (in a spatial sense of the word) such as Latin America, the Mid-East, etc., with emphasis on politics, economics, history and perhaps the language would be of more use to an individual."

"Train professors to teach, emphasize geography as a point of view, teach what students are interested in, change courses often, and revise the marking system."

"Emphasis on teaching instead of publishing, emphasis on quality advisement, mandatory cartography, a class from each of the following groups snould be required: physical geography, economic geography, cultural geography, and regional geography. There should be a yearly get-together for geography undergrads."

"My training was excellent. All my professors were very good."

"In order to prepare students for work in geography other than teaching, I feel that less emphasis should be placed on the names and locations of places and more should be placed on the principles. More and more government jobs will be opening in the fields of resource management and land use planning. I wish that there had been more emphasis placed on these."

"In many of my upper level courses there wasn't a hard-line course of study. Objectives were not clearly defined and they seemed to lack cohesiveness and direction."

"The main problem in geography as in many fields is making it relevant. I consider geography a point of view. The geography point of view is one in which the geographer regards space as the historian regards time. Also the geography point of view is a synthetic point of view where man and his environment are brought together. The overall view of man and his environment and the spatial relationships which exist between the two is one which is too often sadly lacking in debate about the problems facing us. In an age of overspecialization and short-sighted viewpoints the geography point of view is relevant and needed in dealing with the problems of man and his planet. This is what geographers should emphasize when students want to know what use is geography."

"My only comment would be that the department when I was there was totally unrealistic. I enjoyed my courses, most were very well handled. There just seemed to be no recognition of the fact that after learning all that fascinating information I should be able to apply it some way in a career that would not only, hopefully, return me more money that I had been making before I decided to go back for my degree, but also give me a vocation, something I could enjoy doing. Instead I am doing now exactly what I was qualified to do when finishing high school."

Additional Comments and Criticisms

by OSU Graduates Evaluating

Their Geography Curricula

"Department goals need to be more clearly defined to students and more contact between students and faculty in meetings, informal bull sessions, etc."

"Better organization and cohesion of library facilities in one area to facilitate research endeavors needed."

"Department should be more organized and interested in the future of their undergraduate students--to preoccupied with graduate students--need more serviceable programs for undergraduates."

"Much more emphasis should be given to career opportunity."

"I personally feel a minimum of 6 semester hours of 'skill' courses should be given to each freshman or sophomore geography major. Geographic writing, research and theory should be stressed to give a firm foundation to all junior/senior geography majors. It's not so much what you study in geography but the geographic approach to study, research and writing that's important."

"Undergraduate work should prepare a person for a specific skill. Too often it tends to be a forum for the exchange of useless facts and theories. It is obvious that in many cases students exist for the benefit of instructors. Students are encouraged to take courses from professors who otherwise would not have a job. Most instructors tend to be overly optimistic with regard to future job prospects. Of course, if faculty members were honest with students about job opportunities then their academic program would suffer and departmental enrollments would decline."

"I would like to see more courses offered that would force a geography student into a better understanding and appreciation of those people who inhabit the world--and more important the U.S. Too often the winner of a B.S. leaves only to make his paycheck and close the door at 5:00 P.M. In effect he becomes part of the 'silent majority' who, I feel, is the main contributor to the problems of racism, poverty and all injustice found in our land of equal opportunity."

"I feel that the faculty in geography is quite good and attempts were being made to upgrade the program; but the department needs more cooperation from the university in improving classroom, office and equipment facilities to

attract students. There would seem to be great potential in many interdisciplinary areas where geographic analysis could play a vital part if supported by administration, and if staff were increased to accommodate students."

"Seems like a valuable type of study--should have been done a long time ago."

"The courses were relatively easy as I made only A's. I would like to see more specialization in any given area of geography i.e. 3 or 4 cartography or climatology courses."

"Program should be better geared to prepare students for career work. I believe that more professors who have worked out in the 'real world' should be hired."

"The geography degree on its own seems to be of little value --a masters is necessary, I believe."

"If I would have known earlier about city planning, I think I would have geared my studies in that direction."

"When I graduated there was not enough specialization in any one area to benefit one with respect to employment."

"I would sincerely like to see a stronger 'physical program'. My coursework was so diversified it was extremely difficult to specialize. As a tool, geography is great, but as an occupation (other than teaching) geography is lacking something."

"Program was sufficient but after service found job opportunities lacking (especially in teaching field). Salaries are not comparable to others like business or engineering."

"More job counseling for undergraduates and practical application of theory with faculty supervision was needed."

"Wider variety of coursework needs to be offered."

"I felt geography had become too theoretical and sophisticated--moving away from practical application where the emphasis should have been."

"I think too many students go through a program to get a degree and then wonder what they can do with it. Vocational information and decision-making must begin by the junior year. The geography department or club should invite speakers to talk about job possibilities and what is needed for specific careers. Students must be exposed to all possibilities and given as much vocational guidance as possible. This should be followed through for each individual student by advisor counseling. An exit interview for

1st semester senior students should be required in order to actually help secure a job by June of the graduating year. The college and professors have knowledge that they must give out. The degree loses its practical application if graduates must stumble about untrained and unprepared in job procurement. I would suggest a course that would take students to all planning commission meetings and allow for discussion. Take kids into the community. That's where geography is."

VITA

Charles Donald Ross Hagan

Candidate for the Degree of

Doctor of Education

Thesis: RELEVANCE IN RETROSPECT: AN EVALUATION OF GEOGRAPHY CURRICULA AT SELECTED UNIVERSITIES IN OKLAHOMA BY GRADUATED MAJORS 1967-1972

Major Field: Higher Education

Minor Field: Geography

Biographical:

Personal Data: Born at Columbia, Missouri, March 19, 1940, the eldest son of Albert Ross and Melva Snodgrass Hagan. Married Mary Jane Wilkinson, August 27, 1965. Three daughters: Leanne Jane, 5, Leslie Danielle, 3, and Lindsey Elizabeth, 6 weeks.

Education: Attended Columbia, Missouri public schools 1946-1955; graduated from University High School in June 1958; received Bachelor of Arts degree in Political Science from the University of Missouri at Columbia in 1962; received the Master of Arts degree in Geography from that university in 1964. Attended the University of Nebraska at Lincoln, the University of Missouri at Kansas City, and Northwest Missouri State University for additional graduate study; completed requirements for the Doctor of Education degre at Oklahoma State University in December 1975.

Professional Experience: Graduate teaching assistant at the University of Missouri, Columbia 1962-1964 and at the University of Nebraska in Lincoln 1964-1965; Instructor of Geography at Northwest Missouri State University 1965-1972; Assistant Professor there from 1972-1975 (Sabbatical Leave 1973-1974); Graduate teaching assistant, Oklahoma State University, 1973-1974.

Professional Organizations: Gamma Theta Upsilon (Professional Geography Fraternity), Association of American Geographers, National Council for Geographic Education, and the Missouri State Teachers Association.